MOTHERS KNOWLEDGE OF UNDER-FIVE CHILDREN ON DAY CARE ATTENDANCE AS A RISK FACTOR FOR COMMON COLD IN IBADAN NORTH LOCAL GOVERNMENT, OYO STATE.

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DEDICATION

This research work is dedicated to Almighty God who in his infinite mercy brought me thus far.

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ABSTRACT

Common cold (CC) is one of the major causes of ill health in children and those who attend daycare, especially before 3 years of age, suffer infectious episodes that are more severe. Mothers who are the primary care givers are pivotal in the management of this condition, However their knowledge regarding CC and day care have not been fully explored. This study therefore investigated mothers knowledge of under-5 children on day care attendance as a risk factor for CC in Ibadan North Local Government Area (LGA).

A cross-sectional survey involving 385 willing mothers of under-5 children attending Daycare facilities in Ibadan North LGA was conducted. A three-stage sampling technique involving random selection of 5 wards from the 12 wards in the LGA, proportionate selection of 10 Daycare centres from the selected wards and proportionate selection of 385 consenting respondents was adopted. Respondents were interviewed using a pre-testeds interviewer-administered questionnaire that contained 9 point knowledge on CC, 10 – point attitude and 11- point knowledge scales on day care as risk factor. Knowledge scores on CC of ≥ 5 and < 5 were rated as good and poor , ≥ 6 and <6 was categorized as good and poor mothers knowledge on day care as risk factor and scores ≥ 6 was categorized as positive attitude .Data were analysed using descriptive statistics and Chi-square test at $p<0.05$.

Respondents' age was 33.6±5.4 years with 64.2% between 30-49 years, 80.0% had tertiary education , and 34.3% were business women . Majority (64.5%) stopped breastfeeding between 7months-1 year, 54.8% started complementary feeding between 5-6 months and 89.6% have fully immunized their child. Most (46.2%) started taking their children to daycare between 6months -1 year and main reason for taking their children to daycare was so that somebody can look after them when they are at work (61.0%). More of the children (45.5%) spend between 7- 10 hours in the Day care. Mean knowledge score on CC was 6.3±1.1 and 81.6% had good knowledge of CC. Most (88.1%) correctly defined CC as an infection of the respiratory track and only 24.7% correctly identified touching the discharge of an infected person as the cause of CC. Most (53.2%) said their children develop common cold when they started day care. Majority (69.6%) had good knowledge of day care risk with a mean score of 6.5±2.15 and positive attitude towards CC prevention (90.6%) with a mean

score of 8.3±1.93. Some (46.5%) agreed that Day care/ pre-nursery school contribute to a child's manifestation of common cold and 60.3% said that their children developed CC once in a month. The level of education significantly influenced respondents' attitude to CC prevention and their knowledge on day care as a risk factor to CC. Knowledge of mothers on the real cause of CC was low.

A sustainable health education program should be developed to enlighten parents on the causes of most communicable diseases.

Keywords: Common cold, knowledge of risk factors, attitude , mothers of under-5, day care facilities.

Word count: 479

CERTIFICATION

I certify that this study was carried out by ESSIET ABIODUN under my supervision in the Department of Health Promotion and Education, Faculty of Public Health College of Medicine, University of Ibadan

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ABBREVIATIONS/ ACRONYMS

ARI- Acute Respiratory Infections

CC- Common cold

CDC- Centre Of Disease Control

IMG- Ibadan Municipal Council.

LGA- Local Government Area

LRIs- Lower Respiratory Infection.

NDHS- National Demography Health Survey

UNICEF- United Nations Children's Emergency Fund.

URI- Upper Respiratory Infections

U5- Under 5 children

WHO- World Health Organization

CHAPTERS ONE

INTRODUCTION

1.1 Back ground to the study

Common cold has been defined as: “an acute contagious disease of the upper respiratory tract that is marked by inflammation of the mucous membranes of the nose, throat, eyes and Eustachian tubes with a watery then purulent discharge and is caused by any of several viruses.” (Merriam-Webster Medical dictionary, 2002) , is one of the major causes of ill health in children. It includes a wide range of effect including viral infection of the lungs and respiratory tracts. It can also be caused or triggered by a wide large variety of risk factors , especially exposure to air pollution, low birth weight, mal nutrition and overcrowding are also important risk factors . Common cold is a type of Acute Respiratory tract infections (ARIs) which are heterogeneous and complex group of diseases caused by a wide range of pathogens in which the possible anatomic site (s) extend from the pharynx to the alveoli (Johnson , 2007). Worldwide, 6.3 million children under five died in 2013 nearly 17,000 every day with 1.9 million death due to ARI (UNICEF, 2011). In 2013, the under five mortality rate in low income countries was 76 death per 1000 live births almost 13 times the average rate in high income counties 6 death per 1000 live births . Every single day, Nigeria loses about 2,300 under five year old and 145 women of child bearing age. This makes the country the second largest contributor to the under five and maternal mortality rate in the world (UNICEF, 2011)

In developing counties , all these risk factor like (behavioural and environmental factors) continue to affect large part of the population, with the result that respiratory illnesses continues to be one of the most ubiquitous forms of childhood mortalities and one of the major causes of death (WHO,2002) . Common cold is also commonly found after other infections and is association with severe malnutrition. Virtually limited data are available in developing countries to provide final estimates of the role of Common cold in mortality of children aged less than 5 years. However, the WHO figure of 1 out

of 3 deaths can be associated with ARI in children of developing countries. (Center for Disease control and prevention (Center for Disease Control (CDC), 2004) .Furthermore, infectious diseases account for millions of school days lost each year for kindergarten through 12th in the United States (CDC, 2004) , nearly 22 million school days are lost each year due to colds alone and 38 million school days are lost each year due to the influenza virus (CDC, 2004).

1.2 Statement of problem

Respiratory disease is a major cause of mortality and morbidity, throughout the world 1.9 million children died from ARI (common cold) in 2000, 70% of them in Africa and south East Asia (Acharya, 2003). The percentage of deaths due to all causes for common cold is between 2 times and 6 times higher in less developed countries than in developed countries. Respiratory Infections constitute one-third of the deaths in under-five in developing countries (Acharya , 2003).

In most developing countries including Nigeria, the burden of respiratory disease is largely unknown; however the burden of infectious and non-infectious respiratory disease appears to be on the increase (Araoye, 2004). Respiratory illnesses contributed 67 million disability adjusted life years in the year 2000 (Araoye, 2004) which also account for 30-40% of the children attendance out-patient and 20-30% of hospital admissions. It has been shown that it consume significant health sector resources and long-term empiric treatment of common cold contributes to the world-wide antibiotics resistance (Johnson , 2007) .

Common cold and other Respiratory infections are a major cause of hospital admissions and deaths in Nigerian children. Between year 2000 and 2003 it was estimated that pneumonia accounted for 20% of deaths in children under the age of 5 years in Nigeria (Johnson, 2007). In a prospective cohort study in Ilorin, the rate of acute respiratory infections was three episodes per child per year with pneumonia being responsible for 1.3 episodes per child per year (Johnson, 2007). Furthermore, in another hospital-based study in Ibadan, 28.4% of children admitted to the hospital with acute lower respiratory tract infection had acute bronchiolitis with respiratory syncithial virus being the most common

viral aetiologic agent (Lee, Alomon, & Friedman, 2005). There is a seasonal variation in common cold illness in Nigerian children with more episodes occurring during the rainy season (Lee et al, 2005).

Common cold is also commonly found after other infections and in association with severe malnutrition. Limited data are available in developing countries to provide final estimates of the role of Common cold in mortality of children aged under -5 years. However, the WHO figure of 1 out of 3 deaths due to or associated with common cold may be close to the real range of the ARI-proportional mortality in children of developing countries. In Nigeria, during 2013 health survery 0.8% of under-five children developed ARI (Common cold) in South west in the period of two week of survey (NDHS, 2013). Over recent decades, the number of children in collective out-of-home daycare has increased significantly all over the world (Barros ,1999) .The impact of this situation is manifest in the behaviour of infectious diseases in the community, in the form of increased risk of acquiring infectious diseases to which those involved in this care are exposed, which has been widely recognized as a public health problem (Barros ,1999).

Respiratory infections of the upper airways (colds, pharyngitis, sinusitis) and of the lower airways (bronchitis, bronchiolitis, pneumonia), are responsible for the majority of the episodes of infectious disease that occur at daycare, and are the most common cause of childhood disease in the general population (Ackerman , Duff, Dennehy, Mafilo, Krilou, 2001). The microorganisms responsible for these infections are the same ones that attack children cared for at home. Children who attend daycare, especially before 3 years of age, suffer infectious episodes that are more severe and greater in number, approximately double (Slack, Read, & Stanley, 2004) The risk increases in relation to the number of hours spent in daycare. There is a dearth of information on the relationship of pre-nursery attendance and the wellbeing of under- five children and a little involvement of health personnel in the functioning of pre-nursery in Nigeria in relation to school health services. Assessing the knowledge of mother and evaluating their attitude and perception towards common cold is relevant, as knowledgeable mothers are more likely to prevent the spread of respiratory illnesses in their homes, knows the importance of allowing their

children to stay at home and receive treatment in the hospital when they are sick, since mothers are the primary care givers and are pivotal in the management of common cold (Slack et al, 2004).

1.3 Justification of the study

There is universal recognition of the significance of the early childhood period as the most critical stage for health and development. A child's experience during this time influences their success in life in general, and in particular in the spheres of academic performance, employment opportunities, future socioeconomic status, social and emotional wellbeing, and in the development of meaningful relationships with others.
There is a higher frequency of infectious diseases like common cold among children in collective out-of-home and the risk is independent of factors such as age, race, social class and others that may be of relevance to the incidence rates of the diseases in question .Infants and pre-school children are especially susceptible, since they do not yet have immunity to the most common infectious agents due to a lack of previous exposure.

Knowledge and educational level of mothers is important in the wellbeing of the children. Although pre-nursery schooling is good but there is need to know if mothers know it is a risk factor for Common cold among children. Attitude and practice are the consequence of knowledge. There is a dearth of information on the relationship of pre-nursery and the wellbeing of under five children, the study will serve as an evaluation of day care services and some of the factors that contribute to the spread of CC in the day care facilities in Ibadan North Local Government Area also, this study would have an important input in assessing the level of knowledge of mothers on common cold as well as their attitude towards the management of CC, identify the factors causing Common cold among U5 children attending day care facilities, and provide a recommendation on an improved health and care delivery of children. This study was aimed at documenting mothers knowledge on day care attendance as a risk factor for common cold. Findings from this study can serve as input in influencing existing policy for day care facilities concerning child's care and protection

1.4 Research questions

This study answered the following questions:

1 What is the level of knowledge of mothers about the causes and spread of Common Cold among under 5 children

2 What is the level of knowledge of mothers on day care attendance as a risk factor for common cold.

3 What is the attitude of mothers towards prevention of common cold in under-5 child children.

4 What are the experiences of mothers of under children attending day care facilities in relation to common cold.

1.5 Broad objective

The broad objective of this study was to investigate mothers knowledge of under-five children on day care attendance as a risk factors for common cold among in Ibadan North Local Government, Oyo State.

1.6 Specific objectives

The specific objectives of this study were to :

1 Assess the knowledge of mothers about the causes and spread of common cold among under 5 children.

2 Assess mothers knowledge on usage of day care centers as a risk factor to common cold

3 Examine the attitude of mothers towards the prevention of common cold in under 5 children

4 Describe the experiences relating to common cold among mothers of under 5 children attending day care facilities.

1.7 Hypotheses

The following hypotheses were tested by the study:

Hypothesis 1: there is no association between respondents' level of education and their attitude relating to common cold

Hypothesis 2: there is no association between the level of education of the respondents and their knowledge on day care attendance as a risk factor to common cold.

1.8 Study variables

Independent variables consist of- age, education, occupation, family structure, and home setting. Dependent variables are knowledge of mothers on Common Cold, knowledge on day care attendance as a risk factor to common cold, attitude of mothers towards spread of common cold and experience of mothers about common cold in their under 5 children.

CHAPTER TWO

LITERATURE REVIEW

2.1 Review of concept

Acute respiratory illness is one of the major causes of ill health in children . It includes a wide range of effect including viral and bacterial infection of the lungs and respiratory tracts.(Acharya, Prasanna,Nair & Rao,2003) Acute respiratory infections (ARIs) are classified as upper respiratory tract infections (URIs e.g common cold) or lower respiratory tract infections (LRIs). The upper respiratory tract consists of the airways from the nostrils to the vocal cords in the larynx, including the para-nasal sinuses and the middle ear. The lower respiratory tract covers the continuation of the airways from the trachea and bronchi to the bronchioles and the alveoli (Eccles, 2002).

In discussing Common cold illnesses, it refers to a culturally accepted constellation of upper respiratory symptoms (if perceptible only by the affected person) and signs (if perceptible by both affected persons and observers) (Eccles, 2002) that signals the presence of a Upper Respiratory Tract Infection (URTI) caused by Rhinovirus (RV), Respiratory Syncytial Virus(RSV), adenovirus, influenza virus, parainfluenza virus, coronavirus and metapneumovirus, among others (Loule, Hacker, Gonzale,& Mark , 2005). While usually self-limiting and of short duration, URTIs can be associated with a variety of complications that include otitis media , sinusitis , bronchiolitis , asthma exacerbations and pneumonia (Petersen , 2007). Because the use of 'common cold' as an illness descriptor often carries the implicit connotation of RV infection, here we use the more inclusive term, cold-like illness (CLI) in referring to upper respiratory illness during a URTI.

Cold-Like illnesses are not confined to the respiratory tract and have systemic effects because of possible extension of infection or microbial toxins, inflammation, and reduced lung function. Diphtheria, pertussis (whooping cough), and measles are vaccine-preventable diseases that may have a respiratory tract component but also affect other systems. Except during the neonatal period, ARIs are the most common causes of both

illness and mortality in children under five, with average of three to six episodes of ARIs annually regardless of where they live or what their economic situation is. However, the proportion of mild to severe disease varies between high- and low-income countries, and because of differences in specific etiologies and risk factors, the severity of LRIs in children under five is worse in developing countries, resulting in a higher case-fatality rate. Although medical care can to some extent mitigate both severity and fatality, many severe LRIs do not respond to therapy, largely because of the lack of highly effective antiviral drugs. Some 10.8 million children die each year (Barnett, 2008). Estimates indicate that in 2000, 1.9 million of them died because of ARIs, 70 percent of them in Africa and Southeast Asia . The World Health Organization (WHO) estimates that 2 million children under five die of pneumonia each year (Barnett, 2008).

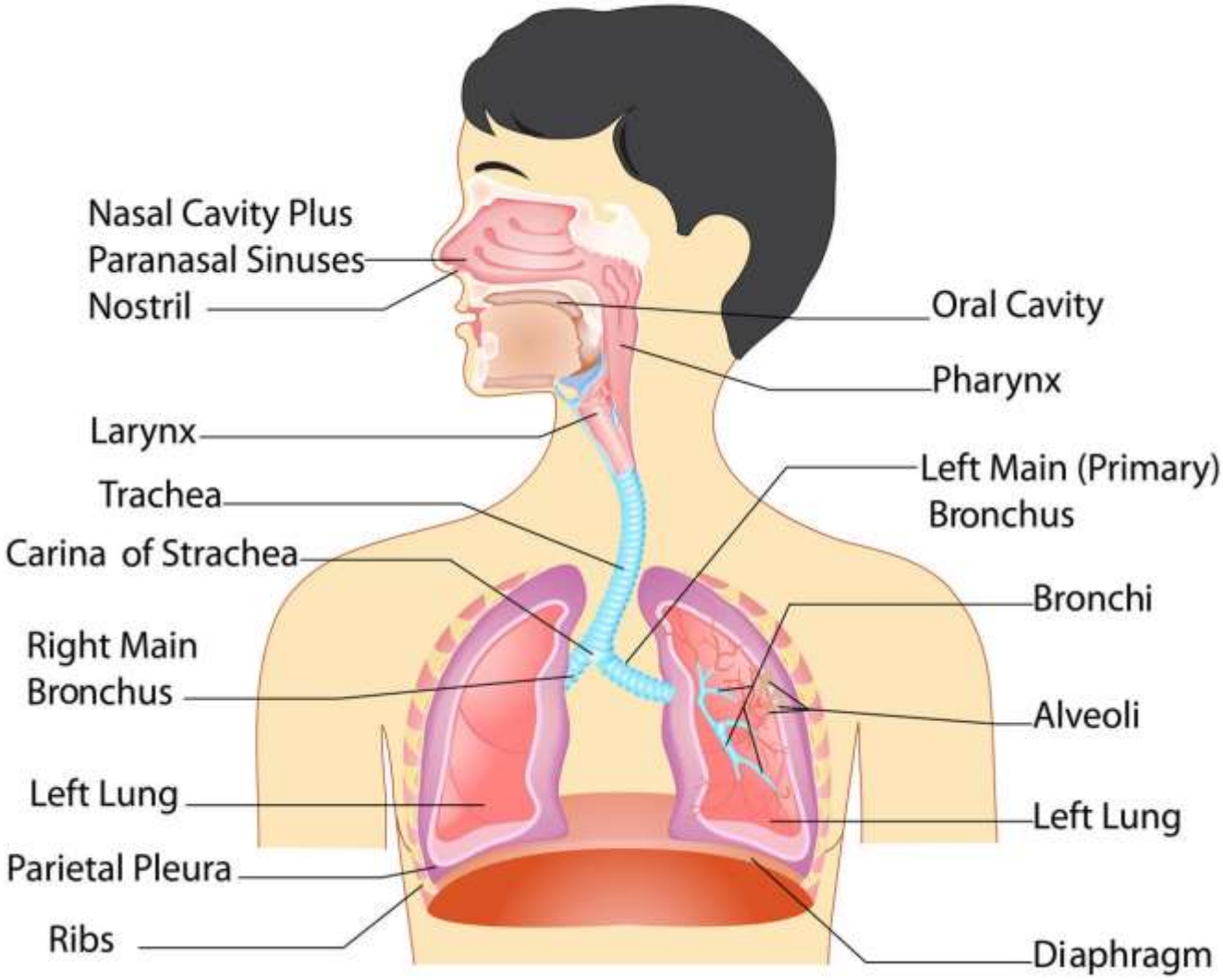

Figure 2.1- Anatomy of the respiratory system

2.1.1 Anatomy of the respiratory systemp

The respiratory system (also referred to as the ventilator system) is a complex biological system comprised of several organs that facilitate the inhalation and exhalation of oxygen and carbon dioxide in living organisms (or, in other words, breathing).

For all air-breathing vertebrates, respiration is handled by the lungs, but these are far from the only components of the respiratory system. In fact, the system is composed of the following biological structures: nose and nasal cavity, mouth, pharynx, larynx, trachea, bronchi and bronchioles, lungs and the muscles of respiration.

A properly functioning respiratory system is a vital part of our good health. Respiratory infections can be acute and sometimes life threatening. They can also be chronic, in which case they place tremendous long term stress on the immune system, endocrine system, , and much more (Challenges for Global health, 2012).

Anatomical Components

1. Nose and Nasal Cavity

The nose and nasal cavity constitute the main external opening of the respiratory system. They represent the entryway to the respiratory tract a passage through the body which air uses for travel in order to reach the lungs. The nose is made out of bone, muscle, cartilage and skin, while the nasal cavity is, more or less, hollow space. Although the nose is typically credited as being the main external breathing apparatus, its role is actually to provide support and protection to the nasal cavity. The cavity is lined with mucus membranes and little hairs that can filter the air before it goes into the respiratory tract. They can trap all harmful particles such as dust, mold and pollen and prevent them from reaching any of the internal components. At the same time, the cold outside air is warmed up and moisturized before going through the respiratory tract. During exhalation, the warm air that is eliminated returns the heat and moisture back to the nasal cavity, so this forms a continuous process. (National heart, lung and blood institute, 2012).

2. Oral cavity

The oral cavity, more commonly referred to as the mouth, is the only other external component that is part of the respiratory system. In truth, it does not perform any additional functions compared to the nasal cavity, but it can supplement the air inhaled through the nose or act as an alternative when breathing through the nasal cavity is not possible or exceedingly difficult. Normally, breathing through nose is preferable to breathing through the mouth. Not only does the mouth not possess the ability to warm and moisturize the air coming in, but it also lacks the hairs and mucus membranes to filter out unwanted contaminants. On the plus side, the pathway leading from the mouth is shorter and the diameter is wider, which means that more air can enter the body at the same speed (Lanata, Rudan, Boschi, Tomaskovic, Cherian, & Weber,2004).

3. Pharynx

The pharynx is the next component of the respiratory tract, even though most people refer to it simply as the throat. It resembles a funnel made out of muscles that acts as an intermediary between the nasal cavity and the larynx and esophagus. It is divided into three separate sections: nasopharynx, oropharynx and laryngopharynx. The nasopharynx is the upper region of the structure, which begins at the posterior of the nasal cavity and simply allows air to travel through it and reach the lower sections. The oropharynx does something similar, except it is located at the posterior of the oral cavity. Once the air reaches the laryngopharynx, something called the epiglottis will divert it to the larynx. The epiglottis is a flap that performs a vital task, by switching access between the esophagus and trachea. This ensures that air will travel through the trachea, but that food which is swallowed and travels through the pharynx is diverted to the esophagus (National heart, lung and blood institute, 2012).

4. Larynx

The larynx is the next component, but represents only a small section of the respiratory tract that connects the laryngopharynx to the trachea. It is commonly referred to as the voice box, and it is located near the anterior section of the neck, just below the hyoid bone. The aforementioned epiglottis is part of the larynx, as are the thyroid cartilage, the cricoid cartilage and the vocal folds. Both cartilages offer support and protection to other components, such as the vocal folds and the larynx itself. The thyroid cartilage also goes by a more common name – the Adam's apple – although, contrary to popular belief, it is present in both men and women. It is typically more pronounced in adult males. The vocal folds are mucous membranes that tense up and vibrate in order to create sound, hence the term voice box. The pitch and volume of these sounds can be controlled by modifying the tension and speed of the vocal folds (Yousif &Klaheq, 2006).

5. Trachea

The trachea is a longer section of the respiratory tract, shaped like a tube and approximately 5 inches in length. It has several C-shaped hyaline cartilage rings which are lined with pseudostratified ciliated columnar epithelium. Those rings keep the trachea open for air all the time. They are C-shaped in order to allow the open end to face the esophagus. This allows the esophagus to expand into the area normally occupied by the trachea in order to permit larger chunks of food to pass through. The trachea, more commonly referred to as the windpipe, connects the larynx to the bronchi and also has the role of filtering the air prior to it entering the lungs. The epithelium which lines the cartilage rings produces mucus which traps harmful particles. The cilia then move the mucus upward towards the pharynx, where it is redirected towards the gastrointestinal tract in order for it to be digested (Challenges for Global health , 2012).

6. Bronchi

The lower end of the trachea splits the respiratory tract into two branches that are named the primary bronchi. These first run into each of the lungs before further branching off into smaller bronchi. These secondary bronchi continue carrying the air to the lobes of

the lungs, then further split into tertiary bronchi. The tertiary bronchi then split into even smaller sections that are spread out throughout the lungs called bronchioles. Each one of these bronchioles continues to split into even smaller parts called terminal bronchioles. At this stage, these tiny bronchioles number in the millions, are less than a millimeter in length, and work to conduct the air to the lungs' alveoli. The larger bronchi contain C-shaped cartilage rings similar to the ones used in the trachea to keep the airway open. As the bronchi get smaller, so do the rings that become progressively more widely spaced. The tiny bronchioles do not have any kind of cartilage and instead rely on muscles and elastin. (National heart, lungs and Blood, 2012).

This system creates a tree-like pattern, with smaller branches growing from the bigger ones. At the same time, it also ensures that air from the trachea reaches all the regions of the lungs. Besides simply carrying the air, the bronchi and bronchioles also possess mucus and cilia that further refine the air and get rid of any leftover environmental contaminants. The walls of the bronchi and bronchioles are also lined with muscle tissue, which can control the flow of air going into the lungs. In certain instances, such as during physical activity, the muscles relax and allow more air to go into the lungs.

7. Lungs

The lungs are two organs located inside the thorax on the left and right sides. They are surrounded by a membrane that provides them with enough space to expand when they fill up with air. Because the left lung is located lateral to the heart, the organs are not identical: the left lung is smaller and has only 2 lobes while the right lung has 3. Inside, the lungs resemble a sponge made of millions and millions of small sacs that are named alveoli. These alveoli are found at the ends of terminal bronchioles and are surrounded by capillaries through which blood passes. Thanks to an epithelium layer covering the alveoli, the air that goes inside them is free to exchange gasses with the blood that goes through the capillaries (Yousif & Klaheq, 2006).

8. Muscles of Respiration

The last component of the respiratory system is a muscle structure known as the muscles of respiration. These muscles surround the lungs and allow the inhalation and exhalation of air. The main muscle in this system is known as the diaphragm, a thin sheet of muscle that constitutes the bottom of the thorax. It pulls in air into the lungs by contracting several inches with each breath. In addition to the diaphragm, multiple intercostals muscles are located between the ribs and they also help compress and expand the lungs (National heart, lung and blood institute, 2012).

2.1.2 Transmission of respiratory infections

A majority of upper respiratory infections are due to self-limited viral infections. Occasionally, bacterial infections may cause upper respiratory infections. Most often, upper respiratory infection is contagious and can spread from person to person by inhaling respiratory droplets from coughing or sneezing. The transmission can also occur by touching the nose or mouth by hand or other object exposed to the virus (Huskin , 2000)

2.1.3 Upper respiratory tract infections (URI)

URIs is the most common infectious diseases. They include rhinitis (common cold), sinusitis, ear infections, acute pharyngitis or tonsillopharyngitis, epiglottitis, and laryngitis of which ear infections and pharyngitis causes the more severe complications (deafness and acute rheumatic fever, respectively). The vast majority of URIs has a viral etiology. Rhinoviruses account for 25 to 30 percent of URIs; respiratory syncytial viruses (RSVs), parainfluenza and influenza viruses, human metapneumovirus, and adenoviruses for 25 to 35 percent; corona viruses for 10 percent; and unidentified viruses for the remainder (Yousif & Khaleq, 2006). Because most URIs are self-limiting, their complications are more important than the infections. Acute viral infections predispose

children to bacterial infections of the sinuses and middle ear (Lanata et al, 2004), and aspiration of infected secretions and cells can result in LRIs.

2.1.4 Types of upper respiratory tract infections

1 Acute pharyngitis

Acute pharyngitis is caused by viruses in more than 70 percent of cases in young children. Mild pharyngeal redness and swelling and tonsil enlargement are typical. Streptococcal infection is rare in children under five and more common in older children. In countries with crowded living conditions and populations that may have a genetic predisposition, post-streptococcal sequelae such as acute rheumatic fever and carditis are common in school-age children but may also occur in those under five. Acute pharyngitis in conjunction with the development of a membrane on the throat is nearly always caused by Corynebacterium diphtheriae in developing countries. However, with the almost universal vaccination of infants with the DTP (diphtheria-tetanus-pertussis) vaccine, diphtheria is rare.

2 Acute ear infection

Acute ear infection occurs with up to 30 percent of URIs. In developing countries with inadequate medical care, it may lead to perforated eardrums and chronic ear discharge in later childhood and ultimately to hearing impairment or deafness (Yousif & Khaleq, 2006). Chronic ear infection following repeated episodes of acute ear infection is common in developing countries, affecting 2 to 6 percent of school-age children. The associated hearing loss may be disabling and may affect learning. Repeated ear infections may lead to mastoiditis, which in turn may spread infection to the meninges. Mastoiditis and other complications of URIs account for nearly 5 percent of all ARI deaths worldwide (Thomas, Catherin, Micheal, Fernado,& Anne, 2002).

A majority of upper respiratory infections are due to self-limited viral infections. Occasionally, bacterial infections may cause upper respiratory infections. Most often, upper respiratory infection is contagious and can spread from person to person by

inhaling respiratory droplets from coughing or sneezing. The transmission can also occur by touching the nose or mouth by hand or other object exposed to the virus.

3 Acute viral rhinitis (the common cold)

The first reported use of 'a cold' as an illness descriptor was in 1537 and reflected the noted similarities between the symptoms and signs of the 'disease condition' and the physiological responses to cold temperature exposure (Ammer , 1997). Indeed, a belief that cold air exposure caused the common cold was widespread during the time of Benjamin Franklin (1706–1790), who countered that developing the illness depended on contact with ill persons. Much later it was shown that most illnesses recognized as a common cold were caused by viruses that infect the upper respiratory tract (Eccles , 2002). Recent definitions for the common cold note its infectious etiology, but still focus on a listing of the signs and symptoms characteristic of the illness. For example, the Merriam-Webster Medical dictionary defines the common cold as: "an acute contagious disease of the upper respiratory tract that is marked by inflammation of the mucous membranes of the nose, throat, eyes and Eustachian tubes with a watery then purulent discharge and is caused by any of several viruses" (Merriam Websters Medical Dictionary, 2002). Thus, in discussing the common cold, we are referring to a culturally accepted constellation of upper respiratory symptoms (if perceptible only by the affected person) and signs (if perceptible by both affected persons and observers) that signals the presence of a URTI caused by rhinovirus (RV), Respiratory Syncytial Virus (RSV), adenovirus, influenza virus, parainfluenza virus, coronavirus and metapneumovirus, among others (Loule et al,2005). While usually self-limiting and of short duration, URTIs can be associated with a variety of complications (Petersen , 2007) that include otitis media , sinusitis bronchiolitis , asthma exacerbations and pneumonia . Because the use of 'common cold' as an illness descriptor often carries the implicit connotation of RV infection, in this study we use the more inclusive term, ARI in referring to common cold.

Signs and Symptoms

These signs and symptoms are also often early signs of other illnesses. Fever is uncommon in children over 3 years of age and rare in adults.

Runny nose, sneezing, cough, lethargy, muscle aches, irritability, irritation of the nose and throat.

Cause

Rhinoviruses are the most common cause of colds. Other viral causes include adenoviruses and coronaviruses.

Transmission

Direct contact with or inhalation of respiratory droplets. Spread can also occur through contact with items freshly contaminated with the nasal or throat secretions of an infected individual, e.g., hands, clothing, toys, utensils, etc. Incubation period varies, depending on the viral agent. The average incubation period is usually 2 to 3 days, but can last as long as 7 to 10 days.

Period of Communicability

Varies by agent, but viral shedding from the nose and throat is greatest during the first 2to 3 days of the infection and usually stops in 7 to 10 days.

Treatment

Only symptomatic treatment is given.

Child Care/School Attendance

If the child has a fever or complications, he/she should see a physician. After seeing a physician, a child having a fever should remain at home until the temperature has been normal for 24 hours.

Preventive Measures

Proper hygiene including meticulous hand-washing, covering the mouth and nose when coughing and sneezing, and proper disposal/decontamination of items used to collect nasal and throat secretions, e.g tissues, handkerchiefs, towels, bulb syringes (CDC,2004)

2.1.5 Causes of upper respiratory infection / common cold

Upper respiratory infection (common cold) is generally caused by the direct invasion of the inner lining (mucosa or mucus membrane) of the upper airway by the culprit virus or bacteria. In order for the pathogens (viruses and bacteria) to invade the mucus membrane of the upper airways, they have to fight through several physical and immunologic barriers.

The hair in the lining of the nose acts as physical barrier and can potentially trap the invading organisms. Additionally, the wet mucus inside the nasal cavity can engulf the viruses and bacteria that enter the upper airways. There are also small hair-like structures (cilia) that line the trachea which constantly move any foreign invaders up towards the pharynx to be eventually swallowed into the digestive tract and into the stomach (Petersen, 2007).

In addition to these intense physical barriers in the upper respiratory tract, the immune system also does its part to fight the invasion of the pathogens or microbes entering the upper airway. Adenoids and tonsils located in the upper respiratory tract are a part of the immune system that helps fight infections. Through the actions of the specialized cells, antibodies, and chemicals within these lymph nodes, invading microbes are engulfed within them and are eventually destroyed.

Despite these defense processes, invading viruses and bacteria adapt various mechanisms to resist destruction. They can sometimes produce toxins to impair the body's defense system or change their shape or outer structural proteins to disguise from being recognized by the immune systems . Some bacteria may produce adhesion factors that allow them to stick to the mucus membrane and hinder their destruction.

It is also important to note that different pathogens have varying ability to overcome the body's defense system and cause infections. Some viruses may infect by much fewer numbers than others.

Furthermore, different organisms require varying time of onset from when they enter the body to when symptoms occur (incubation time). Some of the common pathogens for upper respiratory infection and their respective incubation times are the following:

- Rhinoviruses, 1-5 days;
- Group A streptococci, 1-5 days;
- Influenza and para-influenza viruses, 1-4 days;
- Respiratory syncytial virus (RSV), 7 days;
- Pertussis (whooping cough), 7-21 days;

- Diphtheria, 1-10 days; and
- Epstein-Barr virus (EBV), 4-6 weeks (Thomas etal, 2002).

2.1.6 Early childhood development and pre-primary education in Nigeria.

Early childhood development (ECD) is the care, nurturing, stimulation, and healthcare that a child receives from birth to the age of five years. It is a period of rapid development in the life of a child. This stage is crucial in shaping the potential for a full and productive life in adulthood. When well nurtured and cared for in their early years, children are more likely to survive, grow in a healthy way, be less prone to diseases and illnesses, as well as develop critical thinking, language, emotional and social skills. ECD interventions aim to support effective and essential actions at each phase of the life cycle of the child, from pregnancy, through early childhood, school-going years, and adolescence. It assists parents, teachers, service providers, policy makers and other duty bearers to provide age-relevant support, care and protection for very young children in a holistic manner (FME/UNICEF, 2006)

Increasing attention has been paid to the early childhood years as the foundation of children's academic success. The importance of high quality learning environments, qualified teachers, and family engagement with early care and education programs have all been identified as critical factors in enhancing young children's early learning experiences and their subsequent educational outcomes (Athumani , 2008). This report focuses on one critical aspect in supporting high quality learning experiences for young children – that of family involvement in early care and education programs. Family is the primary influence of young children and sets the stage for how they grow and develop . The more parents are involved with their children, the more positive learning and general life outcomes occur (Baker, Goesling & Letendre, 2002).

In Nigeria the National Policy on Education (NPE) from 2004 recognises the right to pre-primary/nursery education (FGN, 2004). Section 2, Sub Sections 11 to 14 of the NPE states that early childhood care education (ECCE) or pre-primary education is to be

provided to children aged 0-5 years prior to entry into primary school. The purpose is to promote smooth transition from home to school, prepare children for primary education as well as provide adequate care and supervision for children while their parents are at work. The state and local governments are encouraged to establish pre-primary sections in existing public schools. Earlier versions of the NPE show that the government had committed to a minimal role with regards to pre-primary education. Much of the responsibility for the provision of education was left to private providers while the government regulated standards.

ECD provides needed support for children's survival, growth, development, and learning through the health, nutrition, nurturing care and stimulation services provided to them. In most countries these services are usually supported by government through the joint operations of such social service sectors as education, health, and water and sanitation. Such services are aimed at either directly or indirectly giving support to parents and communities in properly caring for the development and early education through stimulation of the very young members of the community – either by direct intervention or by creating an enabling environment for their development and education, or by a combination of both approaches (UNICEF, 2011)

2.1.7 The Concept of Child Care

Child care is an umbrella term referring to any form of non-parental care that occurs on a regular basis (Huston, Chang &Gennetian, 2002). Child care has become an issue of public policy concern due to the influx of a large number of working mothers into the workforce. Children are cared for in various arrangements ranging from informal care giving by relatives and friends to formal care in family child care homes, pre-school settings. Child care has become a norm for the majority of parents with young children. In a research carried out in Ado –Ekiti by Olusola (2014), Child care types are centre-based (day care centres, crèche, nursery school), family child care (care by a relatives in the child's home), baby-sitters or nanny (care by a non relative in the provider's home), and grandparent care (care provided my grandparents of the child either in the child home or provider's home) . A centre refers to a group settings designed for the care of young

children. It includes programme designed primarily for the enrichment of early education as well as setting designed primarily to provide care while parents are working. This centre must be licensed and is subject to some regulations regarding physical safety, ratio of caregivers to pupils, methodology and curriculum to be followed. Relatives include siblings, uncles, cousins and aunts while nonrelatives include in-home babysitters and nannies, neighbours, family friends and housemaids. Grandparent care can take many forms, from occasional babysitting through regular help with childcare to being the sole provider of child care while parents work or living with grandchildren in an extended family setting (Olusola,2014).

Studies have shown that good daycare for non-infants is not harmful while some advocate that day care is inherently inferior to parental care (Erel, Oberman and Yirimiya, 2000). Anderson (1998) state that children provided with daycare are more sociable, more popular and deal with peers better than those raised at home. In some cases, good daycare can provide different experiences than parental care does. In a study by National Institute of childs Health released in 2001, after following children through early childhood to the 6th grade, it was found that the children who received a higher quality of child care scored higher on 5th grade vocabulary tests than the children who had attended child care of a lower quality. The study also reported that teachers found children from childcare to be disobedient, fight more frequently and more argumentative. Although, few mothers indicated that their children exhibit negative behavior after attending daycare, this may be due to the fact that research also indicated that teachers found children from childcare to be disobedient. Additional study has shown that bad daycare puts the child at physical, emotional and attachment risk. Higher quality care was associated with better outcomes. Children in higher quality child care had somewhat better language and cognitive development during the first four and half years of life than those in lower quality care (Erel et al, 2000). Supporting this, Belsky (1992) observed that the effect of daycare appears to depend on the quality of the care provided. Poorly trained child-care workers and large child-caregiver ratios do not promote positive development in children. In contrast, negative effects seem minimal and may even be

outweighed by positive effects in spacious, well-equipped, adequately staffed facilities that provide lots of individual attention and carefully planned activities (Alade, 2013).

The absence of the mother at home often, particularly during the formative years of the child according to Jumai (1995) creates a lot of problem for the proper developments of the child physically, socially and emotionally. More so, when children are below school age, the effects are found to be more negative on the health of the child. Alade 2013 found close relationship between maternal employment and low level of academic achievement of the children. The longer the hours of mothers at work according to her, the shorter the length and quality of interaction of the child (Alade, 2013)

2.1.8 Influencing Factors and Problems of Child day Care

There is a wide spread agreement that child care decisions are complex. Child care is one component of a complex set of family management decisions that are often made with the highest carefulness. Choosing a child care arrangement that is suitable is one of the most important decisions working parents have to make because there is no similar control and benchmark for child care. Good quality childcare has been linked with better short and long term outcomes for children and for society as a whole (Anderson, Foster & Frisvold, 2004).

The challenge of parents however is the difficulty in finding appropriate child care. The research community has amassed considerable evidence about factors and processes associated with child care decisions. Some evidence does suggest that mothers' decision to use or not use child care is based more on a desire to look after their children themselves, rather than on problems with accessing appropriate child care (Hand, 2005). Many parents struggle to find a child care provider on short notice after getting a job or in a bit to respond to the demands of a new job, a change in work schedule and family changes. Some often make choices with limited information about the actual quality, convenience or even the cost of alternative child care. Thus, child care decision making process seems to be prone to changes as the situation demands.

Research has shown that parents consider the following set of factors in choosing a child care arrangement for their children; hours of operation, finances, convenience of the location, availability of transportation, the quality and quantity of different types of child care, the age and developmental goals for individual children in the family, conflicting needs for different family members, family beliefs, values and preferences including cultural beliefs and language use (Olusola,2014)

Child care arrangement choice can also include the specific characteristics of the child care programme, the desire for a provider with shared values, religion and culture, the convenience of time and location or the reliability of the provider .Constraints can however include factors such as budget, employment schedule and availability of services in the surrounding environment (Ebenebe &Ulasi, 2007). Families with high socio-economic status often have more success in preparing their children for school because they have access to a wide range of resources to promote and support young children's development. They are also able to provide them with high quality child care. In addition, families with high socio-economic status often seek information to help them better prepare their young children for school (Hand, 2005).

2.1.9 Day care attendance as a risk factor in occurrence of common cold.

An increasing number of young children are involved in early care and education programs. The Children's Defense Fund (2001) reports that 13 million preschoolers participate in child care each day. This includes 6 million infants and toddler (Center for Community Health ,2005). The U.S. Census Bureau (2002) reported that in 1997 63% of children fewer than 5 years of age attended some form of regular early care and education arrangement an average of 37 hours each week. In Kentucky, 103,000 children access the child care system on a daily basis, including approximately 16,000 children ages 3-4 serviced by Head Start and about 21,000 children serviced by KERA Preschools (Fasina & Fagbeminiyi, 2011). Many young children who are considered "at-risk," as defined by their family income level, receive services through either federal program, or through

state supported programs such as the Kentucky Education Reform Act (KERA) preschool programs in Kentucky (Stainton, 2004).

The viruses responsible for colds or the flu cause the most common sicknesses in child care facilities and schools. Even though your child has had his immunizations, he can get other infectious diseases common in children such as colds, sore throats, coughs, vomiting, and diarrhea. In fact, most children in child care and school settings have as many as 8 to 12 colds a year. Diarrheal episodes occur once or twice a year in the typical child (Akon, Abbey, To, Kim, Mackie, Joannah, Wolff, Bemzweign, 2010).

Whenever children are together, there is a chance of spreading infections. This is especially true among infants and toddlers who are likely to use their hands to wipe their noses or rub their eyes and then handle toys or touch other children. These children then touch their noses and rub their eyes so the virus goes from the nose or eyes of one child by way of hands or toys to the next child who then rubs his own eyes or nose.

To reduce the risk of becoming sick with the flu, child care providers and all the children being cared for must receive all recommended immunizations, including the flu vaccine. The single best way to protect against the flu is to get vaccinated each year. This critically important approach puts the health and safety of everyone in the child care setting first. The flu vaccine is recommended for everyone 6 months of age and older, including child care staff (Akon et al,2010). Immunization is the most effective way to prevent some serious childhood illnesses. Child care services should have readily available information for families on child immunization (Center for Community Health , 2005).

Normally, upon enrolment, day care centers usually ask parent a copy of their child's immunization record. If a vaccine preventable disease occurs in a child care service, parent will be asked to exclude non- immunized children from care. This protect the non-immunized child and helps to prevent further spread of infection (National Health and Medical Research Council,2006)

Daycare and school staff have a key role in preventing the transmission of diseases in day care and the school environment. While it is often difficult to prevent the transmission of common respiratory (colds/flu) ,every effort should be made to minimize the spread of infection by encouraging:

-staff and children at school or childcare to stay at home in the early stages of illness as at this stage they can be infectious and shed the virus, bacteria or parasite through coughing, sneezing, contaminating surfaces and personal contact. School staff and students who are ill should not to return to work/daycare until they are symptom free if they have a cold or flu.

Although child care professionals are not medical practitioners and are not able to diagnose whether or not a child has an infectious illness. However, if an infectious illness is suspected, the child care services may ask the family to collect their child from care as soon as possible (Sonja, 2010).

Quality assurance standard require child care service to implement specific strategies to minimize the spread of infectious illnesses. However, it is not possible to prevent the spread of an illness or disease in day care (Center for Community Health, 2005). It is difficult for families to know when their child is sick enough to need to stay home from child care. Families can experience problems when trying to take time off work to care for an ill child or when they send a child to care who is not well. However, it is important that families maintain a focus not only on the wellbeing of their own child but also upon the wellbeing of other children and the day care professionals (Sonja, 2010).

In a retrospective study conducted in Arizona, literature found out that 10 years old children , who had attended day care experience fewer respiratory tract illness than those who had not attended day care . Therefore study involving older children would be helpful in clarifying the relationship between early attendance in day care and the subsequent occurrence of upper respiratory tract infections during child hood (Nafstad, Ole, Helne,& Akala, 1999). Similar to the results of a study by (Thomas et al , 2002) which reported that consistent with the hypothesis that long-term acquired immunity

obtained in day care is important for the subsequent protection of children against the common cold. Regardless of whether children acquire that immunity in preschool or primary school, they seem to have similar levels of protection by 13 years of age. Clinicians may continue to reassure parents of children in day care that their child's plight with minor respiratory tract illnesses is not in vain.

The primary study of Thomas et al, (2002), found out that children who attended large day care during the first 3 years of life had more frequent colds during the school years until 13 years of age. In addition, a dose response was noted for years spent in large day care. No such protective effects during the school aged years was found for attendance in small day care. Thomas et al concluded that Children in day care experience more infectious illnesses than children cared for at home. The results of studies investigating whether these infections protect attendees of day care from future illnesses were conflicting. This study examined trends in upper respiratory tract illnesses among a cohort of children followed up prospectively from birth through 13 years of age. Children in large day care were found to have more frequent colds during the preschool years but less frequent colds during the early school years. This apparent protection waned by 13 years of age.

2.1.10 Disease transmission in day care

Children in child care come into contact with more children and adults than they do in their own home environment. Children in day care are therefore exposed to a larger no of infectious illnesses at a time when their immunity is still developing. When children first start child care, they are exposed to a range of infections that they are not yet immune to (Sonja, 2010).

Establishments that provide out-of-home care for preschool age children are known to be environments with special epidemiological characteristics, since they have populations with characteristic profile and with specific risks for the transmission of infectious diseases: children in groups being cared for collectively (Matthew, Patwari, Gupta, Shah, Gera, & Gogia 2011). The risk applies to any institution or establishment that provides

daytime care for children in groups, irrespective of whether it is called daycare or nursery/preschool education, or whether it is public or private (Holmes et al, 1996).

A large number of diseases and infectious agents that have been described as occurring in association with daycare and, it has been accepted since the 1940s that there is a higher frequency of infectious diseases among children in collective out-of-home care (Holmes, 1996). The risk is independent of factors such as age, race, social class and others that may be of relevance to the incidence rates of the diseases in question.

Small children have habits that facilitate the dissemination of diseases, such as putting their hands and objects in their mouths, very close interpersonal contact, fecal incontinence during the phase prior to the acquisition of sphincter muscle control, the absence of the habit of hand washing and other hygienic practices and the need for constant direct physical contact with adults (Thompson, 1994) . Furthermore, they also exhibit factors specific to their age such as an immature immune system and dysfunction of the Eustachian tube during upper airway infections, predisposing towards acute otitis media (AOM) (Osterholm, 1994). Infants and pre-schoolchildren are especially susceptible, since they do not yet have immunity to the most common infectious agents due to a lack of previous exposure. They may also even be susceptible to those agents for which vaccines already exist, because they are under the age at which vaccination is indicated or because vaccination has been neglected.

In the majority of cases, the risk of an infectious agent being introduced to a daycare center is directly related to its prevalence in the population in which the center functions and to the number of susceptible individuals at the center. Small children are often asymptomatic carriers of many diseases, serving as a community reservoir of infectious agents. Groups of children therefore become the focus of the multiplication of cases of infectious diseases and their dissemination to the surrounding community (Mathew et al 2011).

Once an agent has been introduced into a daycare environment its further transmission depends partly on the characteristics of the microorganism itself, such as mode of

propagation, number of microorganisms needed to cause an infection, survival in the environment and frequency of asymptomatic infections (number of healthy carriers). Transmission of an infectious agent within a child care center is also influenced by the characteristics of the children attending, including age, sex, immunological status, presence of siblings at home, parents' educational level and families' socioeconomic level and length of time enrolled at the center, being further influenced by characteristics of the center itself, such as the total number of children, class sizes, number of workers per child, and, in particular, on the hygiene involved in handling children and care taken with the environmental (Huskins, 2000).

Diseases that have been described as occurring in daycare centers can be classified according to the system or organ affected, the pattern of occurrence or the mode of transmission (Arkerman, 2001). All the children, staff and families at the day care centers benefit from the practice of excluding ill children from school. Unwell children require additional individual comfort and attention that is different to services provide in a care center. Children are also better able to recover if they can rest and be cared for at home. In addition, the infection is less likely to spread to other children , families and child care professionals (Sonja, 2010)

2.2 REVIEW OF EMPIRICAL STUDIES

2.2.1 Knowledge of mothers about common cold

Studies have shown that in the rural area, mothers had poor information regarding mode of transmission, diagnose, availability of treatment , prevention, and control of ARI (Bandyopadyhyay, Debasis & Ahemed, 2013) . In Kenya, another study reveled that mothers had good knowledge of mild forms on Respiratory Illnesses but not the severe forms (Simiyu , Wafula & Ndulati, 2004).

In Kuala Lumpur, a study carried out by Ebenebe et al , 2007 also documented that there was good knowledge of ARI symptoms with the exception of ear related symptoms. Most of the mothers were aware of the risk factors of ARI. Also, a study by Ibrahim,(2010) , revealed significant gaps in mothers' knowledge of certain child health matters. It also revealed that health education in schools was deficient and it also exposed the limited involvement of health care personnel and institutions in health care education.

One of the main causes of morbidity and mortality of children is the lack of mother's knowledge regarding care of children. Attitude and practice are the consequence of knowledge. Moreover, one of the main reasons is lack of insufficient women's education (Jafari, Amin, Fatemah & Samadpour, 2013). The health education program is only effective if designed based on Knowledge , attitude and practise regarding ARI in children. Mother's education is still considered as a necessity to improve school literacy as well as health literacy. Scheduling, preventing and treatment of ARI in children require the accurate information about Knowledge, attitude and practice of family's members (Jafad et al, 2013).

In the study carried out by Nadia, Huda and Rasha, (2012), older participant mothers had more adequate knowledge and practices than the younger ones in managing fever and URTI. These results explained the role of experience that the older mother had in managing their children's illnesses. Furthermore, mothers who had higher education levels were more knowledgeable than those who had lower educational levels regarding

management of fever which may be due to the effect of the mass media on our community in increasing the mothers' knowledge about many health problems such as these minor illnesses. Their findings are congruent with the previous study findings by Oshikoya and Senbanjo (2008) in Nigeria who found that the educational level of the mother had positive outcomes on mothers' knowledge and practice of managing minor illness especially fever management.

The study in Nigeria also reveals that mothers with higher household incomes had more adequate knowledge and practices than the mothers with lower income in managing URTI. Moreover, mothers who had more children had more adequate knowledge and practices regarding fever management. This could be explained by the fact that fever is a very common minor illness so having more children indicates experiencing more cases of child fever and URTI, mastering more skills of management, as well as receiving more health education (Oshikoya and Senbanjo, 2008).

Health education can change health care seeking behaviours and attitude of parents and other family members to take care during ARI. There is need for strengthening of Information Education Communication (IEC) in other programmes, raising female literacy level, to help in prevention and control of ARI. Proper training of health workers regarding identification, management and timely referral cases of ARI are essential (Bradyopadhyay et al , 2013).

Ibrahim, (2010) also supported a need for health education programs that target high school girls, university students, mothers and other caregivers (e.g. fathers). These should be delivered by trained personnel in classes, courses, and special sessions. In addition, health care facilities should be reformed to make health education an essential and compulsory part of health care delivery. Involvement in these educational activities should be a mandatory requirement for the issue of a license to practice (Ibrahim, 2010).

In Brisbane Australia, a study found that mothers had good knowledge that the environmental factor as dust, unhealthy house hold conditions and cold allergy, heavy

sweating during hot summer months, mothers with cough in family, too cold winter month, pouring lots of water on child's head for high fever or sponging whole body with cold water, drinking cold water and frequent or longer playing with water were the causes for pneumonia. Most of the rural mothers did not have adequate or appropriate knowledge or perception about childhood pnenmonia (Farzana , 2012).

2.2.2 Mothers knowledge on day care attendance as a risk factor to common cold

Recent studies suggest that non-parental child care is common in early childhood due to the increasing number of dual-earner and one-parent families (Anderson & Levine, 1999; Huston, Chang & Gennetian, 2002; Baxter, 2005; Hand,2005). Different child care arrangements are adopted nowadays in caring for children while their parents are busy trying to make ends meet. It has been established that access to affordable, good quality child care is frequently acknowledged to be an essential tool in achieving high workforce participation, maintaining work/family balance and providing good developmental outcomes for children. As a result, child care centres, family child care homes, relatives, grandparents and nannies/house-help maids have become essential child care arrangement options available to working parents during their children formative years. According to Meyer (2006), children represent the workforce of the future and their healthy early development is affected by the quality of care that they receive. It is thus imperative to understand the kind of non-parental child care arrangement that working parents choose for their children and their perception on the different options available to them because of the role it plays in helping working parents to concentrate on their job and the impact it has on the children later cognitive and social development (Olusola, 2014).

Clinical experience and epidemiological studies suggest that respiratory infections sometimes result in airway obstruction diagnosed as asthma, while at other times they do not. It is also known that some children who subsequently develop asthma in early childhood will have more severe symptoms during respiratory tract infections and are more prone to develop infections than non-asthmatic children. Early attendance in full-

time day care may thus contribute to the development of childhood asthma in these children (Prajapati, Nitiben, Lala & Sonalia, 2012).

2.2.3 Attitude of mothers on Common cold prevention

The common cold is caused by number of different viruses and virus serotype and these viruses mutate rapidly in human (Gupta, Jainsk, Ratnesh, Chawla, Hossains & Onkatesh , 2007). This makes finding effective treatments and vaccine elusive. Since finding a cure to common cold is unlikely, the best approach is to prevent infection by adopting good attitude (Gupta, 2007).

Spread of infection occurs primarily via aerosol droplet (from sneezing and coughing or by touching a contaminated object of person). The best way to prevent the common cold is to limit transmission that means mothers should promote habit like frequent hand washing, staying away from others as much as possible when sick and avoidance of those with cold in their children (Gupta, 2007).

A study carried out in Kenya pointed out that the attitude of mothers to common cold was appropriate but subsequent practices were not. Low utilization of health service for moderate common cold may result in continued high mortality because of delayed identification of seriously ill children (Simiyu, etal 2004). Also another study in Iran found out that the older mothers had more attitude on common cold but their practice score were not higher than younger mothers, on the other hand, attitude level of employed mothers was higher, their practice was not higher than house keeper mothers. Also, the study discover there was no relationship between educational level of the mothers and their attitude and practice levels (Jafari etal, 2013). Furthermore, Simiyu , (2004) found that educational level influences the mothers knowledge and attitude but do not affect their practice.

In a study carried out in Tanzania , Athumani (2008) found that mothers were able to recognize symptoms of childhood diseases, also they had proper attitudes towards causes of childhood diseases and their practices were directed towards proper management of childhood illnesses as addressed by IMCI (Integrated Management of Childhood Illness) strategy. Therefore implementation of IMCI programmes in government health facilities has improved health seeking for childhood diseases (Athumani, 2008).

2.2.4 Experience of mothers in relation to day care

The study carried out by Thomas et al, 2002 in Iran concluded that attendance at large day care was associated with more common cold during the pre-school years. However, it was found to protect against the common cold during the early school years, presumably through acquired immunity. The findings is also similar to a study by Nafstad et al , (1999), which shown that young children attending day care have increased morbidity (in terms of airways infection and respiratory symptoms) compared with children staying at home. Another study carried out with 1238 Canadian Families with babies born in 1998 and followed the children from age of 5 month to 8 years compared to young stars who stayed at home, concluded that babies who attend large –group child-care centers before they are 2 years of age do get more respiratory and ear infections than those cared for at home, but they are less likely to come down with these ailments once they start elementary school (Sylvana, 2011).

The study by Sylvana, 2011 also shared the experience of a mother on common cold – Nicole Langaro:

'*Nicole felt like she was at the pediatrician every other day when her now 3- year –old – daughter, Alyssa first started day care. Alyssa was four month old and cold, fevers , ear, infections , you name it and Alyssa got it, recalls Langaro, 33 year old woman'*

' she literally had at least four ear infection in the first year she went to day care', 'she says and now her second daughter, Kylie is following suit.' She has already been on a nebulizer once and she is not even 6 month old. 'like older sister Alyssa , Kylie attends group day-care center in Eastern Long Island.'

" my pediatrician said, your friends whose kids don't go to day care thinks their kids are so healthy, but they will be here all the time the second they start school and I will be seeing less of you and your girls" Langaro Says.

2.3 Risk factors for respiratory disease in Nigeria

The prevalence of infectious and non-infectious diseases tends to be on the increase. This is probably due to an interaction of several factors; biological, environmental, and behavioural. Immunisation remains a cost-effective way of preventing disease. The WHO-expanded programme on immunization in Nigeria includes BCG (Bacillus Calmette-Guéri), diphtheria, pertussis, measles, tetanus, and more recently monovalent hepatitis B vaccine (2004).Immunization coverage in Nigeria is largely dependent on political commitment (UNESCO, 2010).

2.3.1 Behavioural factor

Poverty and malnutrition are important contributors to preventable infectious diseases in Nigeria. The recent HIV/AIDS scourge has also impacted negatively on morbidity and mortality due to TB and pneumonia. Behavioural factors contributing to the increasing burden of respiratory disease in Nigeria include the increasing prevalence of cigarette smoking, particularly among the youth. Smoking in women is also on the increase. More importantly, the persistent exposure to biomass smoke, particularly from cooking fuel, may make this the most important risk factor for Chronic Obstructive Pulmonary Disease (COPD) in Nigeria. Other important factors include the increasing globalization and its impact on respiratory disease. Exposure to refined food and reduced exposure to parasites early in life ('The hygiene hypothesis') explain the rising incidence of non-communicable diseases (particularly asthma) (Oyedeji, 2011) .

2.3.2 Environmental factor.

The primary environment of any individual especially during infancy, is the family and more so, the mother. The developmental problems in the child are greatly determined by the biological variables, but the environment has the potential for influencing early developmental difficulties. Hence a child with environmental risk of living in deprived settlements may sometimes present with developmental delay as, child development is said to be the interplay between genetic and environmental factors, the genes setting the limits of achievement and the environment determining whether he/she achieves it or not. Poverty, substandard housing, overcrowding, inadequate water, sanitation and sewage disposal facilities and related environmental risks and insecurity characteristic of a slum

has a great impact on the survival and quality of life of the urban poor children, especially the below 3 age group. Overcrowding increases the risks of airborne infections and accidents. The lack of safe water and sanitation facilities increases the risk of intestinal infections and other communicable diseases (Oyedeji, 2011). The World Bank has estimated that over 30% of the global burden of disease is associated with poor sanitation, unsafe water, and poor housing. Children over one month of age are especially vulnerable to the health risks of unsafe water and poor sanitation. Hence it can be stated that all the above factors place the children in the urban slums at greater risk for acute respiratory infections, diarrhea, measles, malaria and malnutrition, the five major causes of 70% of under five mortality. About 28% of all deaths in developing countries are due to infectious and parasitic diseases among children under five (WHO,2002).

Care of children had always traditionally been the forte of mothers, irrespective of education, income and social class differences. But it is understood that these differences significantly affect the quality of care provided. Mothers in the urban slums are usually uneducated and unskilled laborers, working in construction sites or as house-maids. In the absence of mothers, it is the girl child in the family who is entrusted with the care of younger children and often the household itself, whereby her education is at stake.(Oyedeji, 2011) And inevitably, the challenging living conditions and long work hours undermine the capacity of these mothers to provide optimal care for children whereby compromises are sometimes made in keeping the children clean, hygienic preparation of food and also in proper waste management, especially in the absence of reasonably adequate services. All these are possible contributory factors, leading to the vicious cycle of malnutrition, lowered immunity and resultant diseases and apathy in the urban-rural children. Lack of opportunity and stimulation were identified as factors responsible for the poor performance of children in the deprived settlements of Turkey. It is interesting to note that the mother-child interactions and child care practices would be reflected in the developmental rate of preschool children with the mothers from traditionally urban families doing better than the first generation slum dwellers (Thomas et al ,2002).

Comparative studies on the home environments of children in deprived urban settings and high socio-economic status has shown that children in deprived settings had poor home environment and this has been a factor that contributed to the difference in their developmental status. Studies on the home environment of preschool children in urban deprived settings using Home Observation for Measurement of Environment has shown that warmth and affection was highest in those homes but acceptance was the domain that scored least (UNESCO, 2010). It was also found that, not even in 10% of homes, parents encouraged children to learn shapes and spatial relationships. These homes also lacked toys, which teach names of animals and number. Added to this, mothers in slums are more prone to depression which affects the quality of maternal interaction with the child and this combined with poor home environment, inadequate provision of sufficient and appropriate play materials has been understood as leading to poor language and fine-motor skills in these children as compared to the better off children in the urban area (UNESCO, 2010). Caregivers in crowded and chaotic conditions have been found to be less responsive to their children, and more restrictive, controlling and punitive. The phenomenon of women headed family is on the rise in urban slums. Contradictory views exist about it. One view is that it is a reason that explains the poor outcomes of children in the slums, as women would be the sole wage earner who have very little time for income generation activities due to household chores, collecting water and fuel. Another view is that, children in such families are better off, as women are more likely to invest in terms of children's future (UNESCO 2010).

2.4 Conceptual frame work

The Conceptual frame work for this research will be based on PRECEDE theory. PRECEDE stands for Predisposing, Reinforcing and Enabling causes in educational diagnoses and evaluation. The model was developed by Green and Kreuter (1980) and it has served as a conceptual frame work in health education planning aimed at diagnosing the health problems of a community, understanding the factors that influences the people's behavior and developing intervention to promote healthy behavior.

The predisposing factors relates to knowledge, attitude, values, norms, perception and belief which are useful for throwing more light on the issues of common cold among under 5 children attending day care centres (that is the increasing prevalence of Acute Respiratory Infections e.g common cold , pneumonia, bronchitis, running nose e.t.c) .The enabling factor are those relating to resources such as time , money, family , facilities e.t.c which are essential in the spread of common cold among under 5. The reinforcing factors include the influence of significant others e.g parent, care givers, peers , school teachers e.t c in the spread of common cold among under 5 children attending day care facilities.

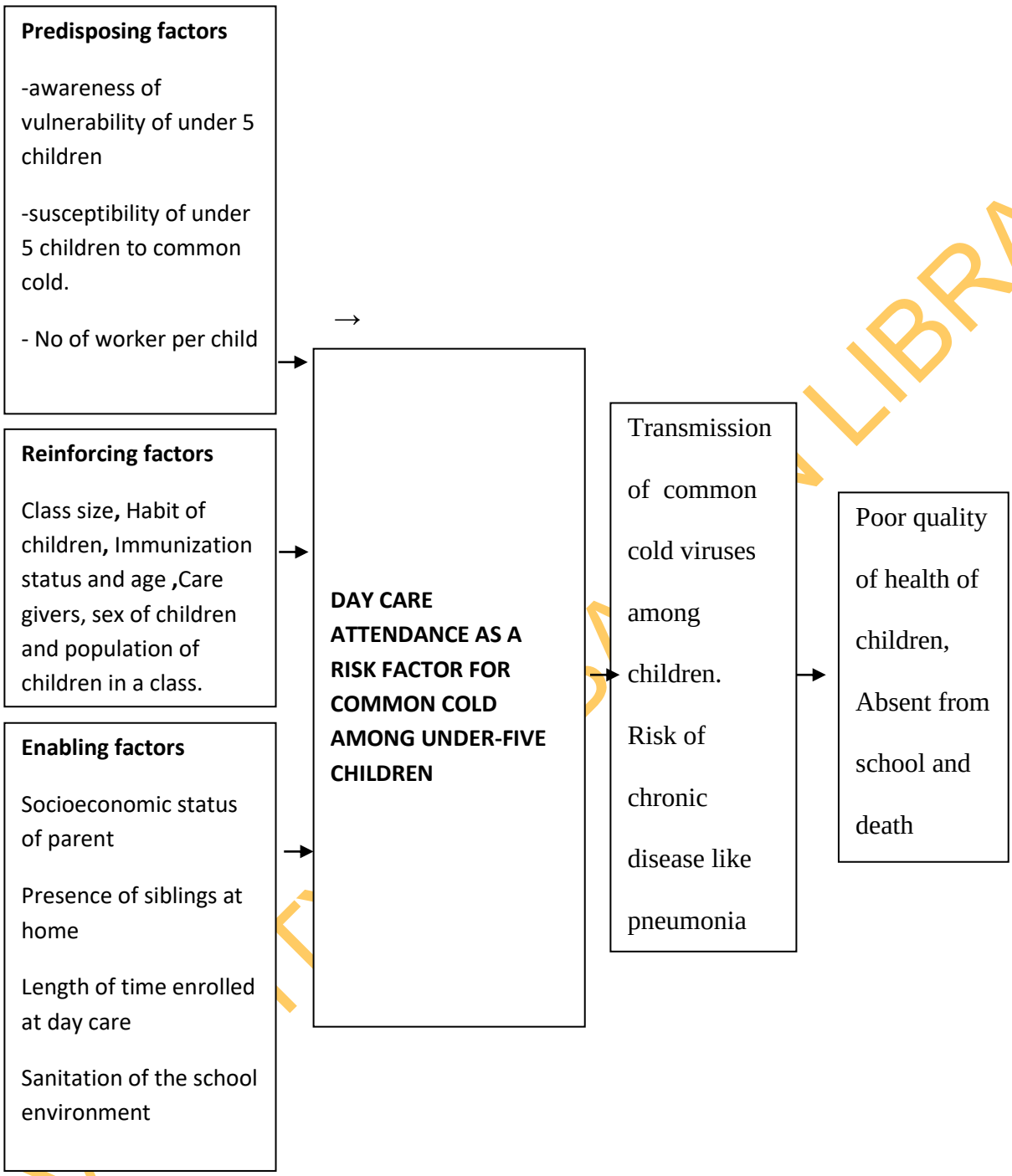

Figure 2.2 The PRECEDE model applied to mothers knowledge of under-five children on day care attendance as a risk factor for common cold.

3.0 CHAPTER THREE

3.1 Study design

This is a descriptive cross-sectional study that set out to investigate mothers knowledge of under-five children on day care attendance as a risk factor for common cold in Ibadan North Local Government, Oyo state, Nigeria.

3.2 Description of study site

The study was carried out in Ibadan North Local Government Area located in the city of Ibadan in Oyo State, Nigeria. Ibadan has an estimated population of 2,550,593(Federal Government of Nigeria National Population Census, 2006) with 313 secondary schools (Federal office of statistic, 1995). Ibadan North Local Government has 12 Wards and was created by the Federal Military Government of Nigeria on September 27th, 1991 from the defunct Ibadan Muncipal Council (IMG) along with four others. The LGA (Local Government Area) covers the area between Beere round about to Gate, Idi-Ape to Bashorun end of Lagos /Ibadan express way, secretariat, University of Ibadan and Agbowo area. It is bound by other local Government Areas : in the North by Akinyele local government Area, in the West by Ido, Ibadan South West LGAs. It is bounded in the East by Ibadan North East and lagelu LGAs.

The population of Ibadan North Local Government Area according to the 2006 FGN Population census was 306,795 comprising of 153,039 males and 157,756 females. The population of under 5 could not be obtained from the LGA, however 43.2% of Nigeria population are between the age of 0-14 years (NDHS, 2013). Therefore the population of under 5 children in the Local Government can be estimated as 132, 535.

Ibadan NLGA has a number of educational facilities within its region. Some of the educational institutions include University of Ibadan, University College Hospital, the Polytechnic Ibadan, 104 Secondary schools, 80 public secondary and 24 registered private secondary school , 63 primary schools and 145 nursery and primary schools in Ibadan North Local Government.(Local Inspector of Education Ibadan North, 2015)

List of the wards and communities in Ibadan North Local Government Area

Ward 1- Beere, Kannike , Agbadagbudu, Oke-Are and Odo-oye

Ward 2- Ode-Oolo, Inalende, Oniyanrin and Oke Oloro

Ward 3- Adeoyo , Yemetu, Oke- aremo, and Isale Alfa

Ward 4 – Itu Taba, Idi-Omo, Oje-Igosun, Kube, Oke-Apon, Abenla, Aliwo/ Total and NTA area

Ward 5- Basorun, Oluwo, Ashi, Akingbola, Ikolada and gate

Ward 6- Sabo area

Ward 7- Oke-Itunu, Coca-cola, and Oremeji Area

Ward 8- Sango and Ijokodo Area

Ward 9- Mokola, Ago Tapa and Premier Hotel Areas

Ward 10- Bodija, Secretariat , Awolowo, Obasa and Sanusi

Ward 11- Samonda, Polytechnic and University of Ibadan Area

Ward 12- Agbowo, Bodija Market, Ojurin, Barika, Iso Pako, Lagos/Ibadan Express road areas.

3.3 Study population

The study population consisted of mothers of under 5 children living or working in Ibadan North Local Government, with under 5 children that are attending day care facilities (pre-nursery, crèche, play group and nursery schools).

3.5 Inclusion criteria

Mothers with children that are under five years old attending day care facilities in Ibadan North Local Government and who agreed to participate in the study.

3.6 Exclusion criteria

Mothers of under-five whose under 5 are not attending day care facilities or other care givers and mothers of under 5 in day care centers who did not consent to participate in the study.

3.7 Sampling size determination

The sample size was determined using EPI INFO statistical package 7. The study sample for this research was calculated using the Kish Leslie sample size formula of 1965 for cross-sectional studies. This same formula was also used by Araoye (2004) which is:

$N = Z^2 pq / D^2$

Desired precision 0.5

Expected prevalence 0.35

Design effect 1.0

Confidence interval 95%

Sample size 349.6

10% attrition 34

Total population 385

3.8 Sampling procedure

A muilti-stage sampling technique was used in selection of study participant.

1 All the schools with day care facilities were enumerated according to their wards and numbers assigned to them.

2 Random selection of 5 wards from the 12 wards in the Local Government Area using simple balloting method

3 Two schools was randomly selected through simple balloting from each of the five wards selected .The sampling size was equally shared among the ten schools selected .

4 In each school, proportionate sampling was used to share the sampling size among the arms of the classes with under 5 children. Volunteered mothers was given the Questionnaire to answer. List of wards selected are, Ward 3, Ward 5, Ward 8, Ward 9 and Ward 11.

3.9 Quantitative instrument for data collection

Quantitative instrument of data collection was used .A semi-structured interviewer administered questionnaire was used for the survey. The questionnaire was developed through review of literature and it contained questions collecting socio-demographic information, assessing knowledge of Common Cold, attitude about Common Cold, mothers' knowledge of day care attendance as a risk factor to common cold, and experience of mothers about Common Cold. The questionnaire was divided into five sections accordingly.

3.10 Validity of the instrument

The instrument was validated by ensuring that a comprehensive review of related literatures was conducted and salient variables relating to knowledge of mothers and day care attendance as a risk factor for common cold among under-five children . Literature for this research was acquired from reliable sources. The result of the literature review was used to develop the questionnaire. After development of the questionnaire, it was extensively revised after thorough expert review by the researcher's supervisor and other staff and lecturers in the Department of Health Promotion and Education of the Faculty of Public Health, University of Ibadan. The questionnaire was then pre-tested in a similar sample population in Ibadan North West Local Government. After pretest, errors - (mothers putting the age of their child where they are supposed to put their age , some of the respondent have more than one U5 and there was no section to accommodate it and the sex of the children was not specify in the questionnaire) in the structure of the questionnaire were corrected before the final questionnaire was produced and deployed for the research.

3.11 Reliability of the instrument

This refers to the measure of internal consistency. A measure is said to have a high reliability if it produces consistent results under consistent conditions. A pre-test was conducted among mothers of under 5 children that are attending day care facilities in Ibadan North- West Local Government with a draft of the questionnaire to determine its consistency and accuracy. Copies of the pre- tested questionnaire were entered them into a computer for analysis. Measure of Internal consistency was determined using the Cronbach's Alpha coefficient method .This method of reliability measurement, any result which shows a correlation coefficient greater than 0.5 is said to be reliable depending on the researcher's specific requirement. For this study, the result obtained was 0.708 which is greater than 0.5. This shows that the instrument was reliable .

3.11 Data collection process

Four research assistants who are literate, mature, undergraduate of various tertiary institute and also had previous experiences on data collection was recruited and trained for one day. The content of the training include purpose of the study, interpersonal communication, and data collection procedures. Approval were sought from the heads of the institution (day care) from which the sample population were to be drawn from. After receiving a favorable responses from the Local Government, and the heads of the Day care facilities, copies of the questionnaire were distributed among the mothers in the selected schools. Questionnaire was administered to 385 participants who met the inclusion criteria.

3.13 Data management and analysis

The investigator checked all copies of administered questionnaire one after the other for purpose of completeness and accuracy. Also, the copies of the questionnaire were reviewed and edited for random and systematic error and possible corrections made. A serial number was assigned to each copy of the administered questionnaire for easy reference and identification. Coding guide was developed for the questionnaire to code and enter each question into the computer for analysis. After that the entered data was cleaned and analyzed using descriptive statistics and inferential statistics (frequency, mean , standard deviation and chi-square).Knowledge on CC was assessed on a 9- point

scale and score ≥ 5 was regarded as good while mothers knowledge on day care attendance as a risk factor was assessed on a 11-point scale and scores ≥6 was categorized as good. Attitude was assessed on a 10-point scale and scores ≥6 was categorized as positive

3.14 Ethical consideration including informed consent

Ethical approval was sought from Oyo State Ministry of Health Ethical Review Committee and informed consent was obtained from participants though it did not require the names of the participants but required their signatures and date. Confidentiality of information was ensured beneficence –small incentives was presented to participant and non-maleficence –no risk or harm for participating in the study. Participation in the study was voluntary and data collected was used mainly for research purposes.

Written informed consent was obtained from respondents before administering questionnaires Ethical issues like confidentiality, opportunity to decline interview at any stage and non exposure to risk was discussed with each respondents. Only respondents who are able to give informed consent (i.e are able to demonstrate an understanding of the objectives of the study and the implication of their role in it) were recruited into the study

Confidentiality of data: in order to assure respondents of confidentiality of the information that will be supplied, names of respondents were not required, only identification number was assigned to the questionnaire for proper recording.

Translation : The common language in Ibadan North community is Yoruba , thus the questionnaire was translated to Yoruba language and back translated to English Language and the English version was used in data collection.

Beneficence to participants: the outcome of the research will be of benefit not only to the participants, but to the Ministry of Education in charge of pre- nursery schools in Oyo State as it will help the ministry in improving on the school programme and better health care for the children.

Non- maleficence to participants: the research did not require collection of invasive materials, therefore, safety of the participant was guaranteed.

Voluntariness: the participants had the full detail concerning the research before taking part in it so as to ensure that she fully understands the research and is willing to take part in it.

3.15 Limitations of the study

This study has a number of limitations. First the study is restricted to only mothers of under 5 children attending day care facilities and the findings may not be generalized to the entire mothers of under 5 children in Ibadan North Local Government Area.

Secondly, there can be a slight chance of recall bias due to the relatively long interval between the time the under 5 developed common cold and when data was collected.

CHAPTER FOUR

4.0 RESULTS

4.1 Socio-demographic characteristics

The ages of respondents ranged from 20 to 50 years with a mean of 33.6 ± 5.4 years. The majority (64.2%) fell between 30 to 49 years age group. (see table 4.1). Majority of the respondents (88.3%) were Yoruba followed by the 9.4% that were Igbo. Almost all the respondents (90.4%) are Christians while few (6.8%) were Muslims. Most of the respondents (93.5%) were married, (3.4%) divorced and (1.8%) single. The respondents were mostly educated with 80.0% of them having completed tertiary education, 15.8% with secondary education and just 1.8% without formal education. The predominant occupation is business evident by the 34.3% of the respondents being business women. Other were government workers (16.1%), medical personnel (10.1%), fashion designer (9.9%) and Bankers (8.6%).

Most of the respondents (57.7%) live in bungalows followed by 19.0% that live in face me and face you, 8.8% in mansion, 7.8% living in one room apartment and 6.8% living in two bedroom apartment/Flat. Most of the respondents (58.2%) reported that only 1-2 people sleep in a room while 35.3% of the respondents have 2-4 people living in a room. Few of the respondents (3.6%) still have about 6-8 people living in a room. Majority (86.5%) claimed to live in rooms that are fully ventilated (i.e rooms with at least two windows), some (11.9%) are living in partially ventilated rooms while very few of them(1.6%) live in rooms with no ventilation (room without a window). The popular source of energy for cooking is the gas cooker (74.8%), followed by kerosene stove (39.7%) and electric cooker (11.9%). Few of the respondents (5.5%) do smoke while some (29.1%) reported their husband to be a smoker. (see table 4.2)

Table 4.1: Socio-demographic characteristics of the respondents (N= 385)

Socio-demographic Variable	Frequency	Percentage
Age (in years)		
20-29 years	86	22.3
30-39 years	247	64.2
40-49 years	49	12.7
50-59 years	3	.8
Ethnic group		
Yoruba	340	88.3
Hausa	9	2.3
Igbo	36	9.4
Religion		
Christianity	348	90.4
Islam	26	6.8
African tradition	11	2.9
Level of education		
Never went to school	7	1.8
Primary level	9	2.3
Secondary level	61	15.8
Tertiary level	308	80.0
Numbers of under-five children		
1	81	21.0
2	146	37.9
3	88	22.9
4	54	14.0
5	16	4.2

Table 4.2: Characteristics of Respondents' Houses (N=385)

Socio-demographic Variable	Frequency	Percentage
Number of people that sleep in a room		
1-2 people	224	58.2
2-4 people	136	35.3
4-6 people	11	2.9
6-8 people	14	3.6
Reported house ventilation		
Full ventilation (at least two windows in a room)	333	86.5
Partial ventilation (a window in a room)	46	11.9
No ventilation (No window in a room)	6	1.6
Source of energy for cooking*		
Kerosene stove	153	39.7
Charcoal stove	6	1.6
Electric cooker	46	11.9
Gas cooker	288	74.8
Respondent smoking		
Yes	21	5.5
No	364	94.5
Husband smoking		
Yes	112	29.1
No	273	70.9

4.2 Children demographic characteristics

The mean number of children of the respondents is 2.42 ±1.1 while the mean number of under five children was 1.57 ±0.7. Most of the under -5 children are first born (see table 4.3). Most of the mothers (42.1%) claimed that the birth weight of their child to be greater than 3.5kg, and 41.6% claimed the birth weight of their child to be between 2.5kg and 3.5kg and 16.1% had children with less than 2.5kg birth weight (see table 4.4). For most of the respondents (42.9%), the age of the under-5 child is between one and two years. This is followed by (41.3%) reporting the age of the under-5 child to be between 2 and 4 years. Most of the under-5 children (79.7%) as reported by the respondents have stopped breastfeeding. Most of the respondents (64.5%) stopped breastfeeding their Under 5 between 7 months to 1 year, 22.1% stopped breastfeeding between 1 – 2 years of age, and 12.4% stopped breastfeeding before 6 months of age of the child. (see table 4.5). Most of the mothers (54.8%) started complementary feeding for the child between 5- 6 months, 20.3% started introducing complementary food between 7-9 months, 15.6% started complementary foods between 3-4 months while 9.4% started complementary foods between 10-12 months. Most of the mothers (89.6%) have fully immunized their children 8.6% have partially immunized their children and very few 1.8% did not immunize their children at all. About three-quarter of the mothers (72.7%) have fully immunized their children with special vaccines like the rotavirus, 11.9% have partially immunized their children with special vaccine and 15.3% have not immunized their children with special vaccines like the rotavirus. (see table 4.5).

Most of the mothers (46.2%) reported that they started taking their children to Daycare facilities between the ages of 6 months and 1 year. A third of the mothers (36.1%) reported they started taking their children to Daycare even before the age of 6 months and 16.9% said they started taking their children to Daycare when the children are between 1 and 2 years.(see table 4.6). While mothers have different reasons for taking their children to day care, 61.0% said they took their children to day care because they don't have anybody to look after them when they are off to work, 24.2% said they take their children to daycare so that they will have time for other things. However,14.8% said the reason behind taking their children to daycare was for children to socialize. Majority of the

respondents' children (51.9%) spend between 4 – 6 hours at Daycare, 45.5% spend between 7- 10 hours at Daycare. For most of the respondents (57.4%), the population of children in their children's class was between 20 and 30 children , 36.4% reported the population to be less than 20 children and 6.2% reported that they have more than 30 children in their children's class. Most of the Under five children (46.2%) are in play group/kindergarten.(see table 4.6).

Table 4.3: Respondents' child's demographic characteristics (N=385)

Socio-demographic Variable	Frequency	Percentage
Number of Under 5 Children		
1	213	55.3
2	129	33.5
3	40	10.4
4	3	.8
No of males		
1	176	45.7
2	125	32.5
3	11	2.9
No of female		
1	191	49.6
2	68	17.7
3	4	1.0
4	6	1.6
Position of Under 5 in the family		
1st	166	43.1
2nd	109	28.3
3rd	81	21.0
4th	29	7.5

Table 4.4: Child's demographic characteristics (N=385)

Socio-demographic Variable	Frequency	Percentage
Position of second under 5 in the family (N=172)		
2nd	75	43.6
3rd	37	21.5
4th	44	25.6
Last born	16	9.3
Birth weight of child		
>2.5kg	62	16.1
2.5-3.5kg	160	41.6
>3.5kg	162	42.1
No response	1	.3
Age of Under 5 child		
0-6 months	17	4.4
7-12 months	44	11.4
More than 12 month -2 years	165	42.9
More than 2 years-4 years	159	41.3
Age of the other under 5 child (N=172)		
0-6 months	3	1.7
7-12 months	9	5.3
More than 12 month -2 years	48	27.9
More than 2 years-4 years	112	65.1
>4 years		

Table 4.5: Breastfeeding and Immunization Status of Respondents' Under-5 Children (N=385)

Variable	Frequency	Percentage
Child still breast feeding		
Yes	78	20.3
No	307	79.7
If no, when breast feeding was stopped (N=307)		
<6months	38	12.4
6months- 1 year	198	64.5
Between 1 to 2 years	68	22.1
> 2years	3	1.0
Time complementary food was introduced		
3- 4 months old	60	15.6
5-6 months old	211	54.8
7-9months old	78	20.3
10-12 months old	36	9.4
Immunization status of child		
Fully immunized	345	89.6
Partially immunized	33	8.6
Not immunized	7	1.8
Immunization status of Special vaccines (e.g rotavirus)		
Fully immunized	280	72.7
Partially immunized	46	11.9
Not immunized	59	15.3

Table 4.6: Attendance of Daycare (N=385)

Variable	Frequency	Percentage
Age the child started attending day care facilities		
Before 6months	139	36.1
Between 6 months and 1 year	178	46.2
Between 1 year and 2 years	65	16.9
More than 3 years	3	.8
Time interval of child's stay in day care /other similar places		
4-6hours	200	51.9
7-10 hours	175	45.5
More than 10 hours	10	2.6
Population of children in child's class		
Between 5- 19 children	140	36.4
Between 20-30 children	221	57.4
>30 children	24	6.2
Class of under 5		
Creche	57	14.8
Play group/kindergarten	178	46.2
Nursery/Prenursery	150	39.0
What class is your other under 5 (N=173)		
Creche	15	8.7
Play group/kindergarten	84	48.6
Nursery/ Pre-nursery	74	42.7
Reason for taking the child to day care		
Don't have anybody to look after them when am gone work	235	61.0
In order for my child to socialize	57	14.8
So that I will have time for other things	93	24.2

4.3 knowledge of Common Cold

Majority of the respondents (81.6%) had good knowledge of common cold. The mean knowledge score was 6.34±1.08. More than three-quarter of the respondents (88.1%) were able to correctly define common cold as an infection of the respiratory tracts. Some of the respondents (10.9%) still wrongly state common cold as a non-communicable disease. Almost all of the respondents (95.3%) identified Rhinitis / catarrh as types of common cold and 3.1% wrongly identified measles and mumps as types of common cold. Majority of the respondents (82.3%) wrongly believed that overcrowding, poor ventilation and cold weather are the causes of common cold. Few of the respondents (16.6%) believed poor immunization and genetics, poor sanitation /malnutrition as the causes of common cold. About a quarter (24.7%) correctly identified touching the discharge of someone infected with the virus as the cause of common cold.

Almost all of the respondents (92.7%) identified nasal discharge, running nose and sneezing as the signs and symptoms of common cold and 6.0% wrongly identified itching /rashes as the signs and symptoms of common cold. Majority (74.5%) stated that washing of hands with soap and water after sneezing/coughing and use of sanitizers are ways of preventing the spread of common cold. Some of the respondents (15.8%) still wrongly stated that using handkerchief to sneeze and putting it on the table is a way of preventing the spread of common cold and 9.6% admitted not knowing. (see table 4.7) .Most of the respondents (77.1%) agreed that common cold can lead to dangerous sickness. Some of the respondents (22.9%) disagreed that common cold can lead to any dangerous sickness. Some of the respondent (45.5%) agreed that malnutrition can cause common cold and 54.4% disagreed that malnutrition can cause common cold . Few of the respondents (28.3%) agreed that fully immunized babies would not have common cold while majority of the respondents (71.7%) disagreed . A little above half of the respondents (53.5%) agreed that when a family member has cough, the child will also develop cough. Some of the respondents (46.5%) disagreed that when a family member has cough, the child will develop cough. Most of the respondents (78.7%) agreed that drinking of cold water and cold weather can cause common cold while some (21.3%) disagreed that drinking of cold water and cold weather can cause common cold (see table 4.8).

Table 4.7: Knowledge of Common Cold (N=385)

Knowledge Variable	Frequency	Percentage
Definition of Common Cold		
Common Cold is an infections of respiratory tracts**	339	88.1
Common cold is a non-communicable disease	42	10.9
Common cold is an infection of the digestive system	4	1.0
Types of Common cold		
Rhinitis/ catarrh**	367	95.3
Measles/mumps	12	3.1
Pneumonia	6	1.6
Causes of Common cold*		
overcrowding/poor ventilation/cold weather	317	82.3
Touching the discharge of someone infected with the virus**	95	24.7
Poor immunization /genetics	64	16.6
poor sanitation/malnutrition	64	16.6
Signs and symptoms of Common cold		
Nasal discharge/ runny nose/ sneezing**	357	92.7
Itching /rashes	23	6.0
Headache/bleeding	5	1.3
Ways of preventing the spread of Common cold		
Washing hands with soap and water after sneezing/coughing and use of sanitizer **	287	74.5
Using of handkerchief to sneeze and put it on the table	61	15.8
Don't know	37	9.6

***multiple response**
**** Correct answers**

Table 4.8: Knowledge of respondent on common cold (n=385)

Knowledge statements	agree	disagree
Common cold can lead to dangerous sickness	297(77.1%)	86(22.9%)
Malnutrition causes common cold	175(45.5%)	210(54.5%)
Fully immunized babies would not have common cold	109(28.3%)	276(71.7%)
When a family member has cold , my child will develop cold	206(53.5%)	179(46.5%)
Drinking of cold water and cold weather causes common cold	303(78.7%)	82(21.3%)

4.4 Mothers knowledge on usage of day care as a risk factor to common cold

Almost half of the respondents (49.1%) disagreed that Day care /pre-nursery contribute to their child's manifestation of common cold and 46.5% however agreed that Day care/ pre-nursery contribute to a child's manifestation of common cold. Most of the respondents (73.2%) agreed that Daycare that permits parents to bring their sick child are exposing the other children to diseases, 23.9% although disagreed that Daycare that permits parents to bring their sick child are exposing the other children to diseases . A little above half of the respondents (58.7%) agreed that the numbers of children in the day care contribute to the spread of common cold, 37.4% disagreed that the numbers of children in the day care contribute to the spread of common cold.

Most of the respondents (65.5%) stated that the sleeping arrangement of children in the day care can contribute to the spread of common cold and 32.7% disagreed that sleeping arrangement of children in daycare can contribute to the spread of common cold. Above half of the respondents (61.8%) agreed that the age of a child can make the child more vulnerable to communicable disease while some of them (32.7%) disagreed that the age of a child makes the child more vulnerable to communicable disease . Almost all of the respondents (90.1%) stated that it is better to a child away from school when they are sick although few (6.8%) disagreed with this (see table 4.9)

A few of the respondents (27.8%) agreed that teachers should not turn parents down from bringing their children to school when they are sick and 72.2% agreed that teachers should be turned parents down from bringing their children to school when they are sick. Almost all of the respondents (93.5%) disagreed that mothers should not tell teachers when their baby is sick and 6.5% agreed that mothers should not tell teachers when their baby is sick. Some of the respondents (17.4%) agreed that mothers should take their child to school when they are ill while majority of the respondents (82.6%) disagreed that mother should take their child to school when they are ill. Few of the respondents (7.0%) stated that they encourage other children to play with their children having common cold, however majority of the mothers (93%) disagreed (see table 4.9)

Table 4.9: knowledge on usage day care as a risk factor to common cold (N-385)

Risk factor Statement	Agree	Disagree
Day care/ pre-nursery contribute to my child's nanifestation of communicable disease	179(46.5%) **	189(49.1%)
Day care that permits parent to bring their sick child to school for caring for them are exposing the other children to diseases	282(73.2%) **	92(23.9%)
The numbers of children in the day care contribute to he spread of communicable disease	226(58.7%) **	144(37.4%)
The sleeping arrangement of children in day care can contribute to the spread of communicable disease	252(65.5%)**	126(32.7%)
I think the age of a child makes them more vulnerable to communicable disease	238(61.8%)**	126(32.7%)
Teachers should not turn parents down from bringing heir children to school when they are sick	107(27.8%)	224(72.2%)**
Mother should not tell teachers when their baby is sick	25(6.5%)	360(93.5%)**
Mother should take their child to school when they ure ill	67(17.4%)	318(82.6%)**
I encourage other children to play with my child having Common cold	27(7.0%)	358(88%)**
It is better to keep a child away from school when hey are sick	347(90.1%)**	26(6.8%)

**** good knowledge**

4.5 Attitude of mothers on common cold prevention

Majority of the respondents (87.8%) disagreed that washing of hand after blowing babies nose is not necessary. Some of the respondents (9.9%) agreed that washing of hands after blowing babies nose is not necessary.

Majority of mothers (86.0%) disagreed that a child should not be taken to the hospital for having ordinary common cold and 7.0% agreed that a child should not be taken to the hospital for having ordinary common cold. Few of the respondents (8.1%) agreed that it is better to take children's bath with cold water and majority of the respondents however disagreed that it is better to take children's bath with cold water. About 77.7% disagreed that there is nothing bad in breastfeeding a child when cooking in the kitchen. Although some of the respondents (14.3%) agreed that there is nothing bad in breastfeeding a child when cooking in the kitchen. While majority of the respondents (88.1%) disagreed that it is good to put on both fan and air condition when baby is sleeping and 6.2% agreed. Few of the respondents (8.3%) agreed that it is not compulsory to wear sweater for child when it is rainy and 86.5% however disagreed that it is not compulsory to wear sweater for a child when it is rainy.(see table 4.10) . Most of the respondents (90.6%) have positive attitude with a mean attitude score of 8.3±1.94.

Table 4.10: Respondent attitude on commom cold prevention (N=385)

Attitudinal Statement	agree	disagree	undecided
Washing of hands after blowing babies nose is not necessary	8(9.9%)	38(87.8%)**	(2.3%)
A child should not be taken to the hospital for having ordinary Common cold	7(7.0%)	31(86.0%)**	7(7.0%)
It is better to take children's bath with cold water	1(8.1%)	13(81.3%)**	1(10.6%)
There is nothing bad in breast feeding a child when cooking in the kitchen	5(14.3%)	99(77.7%)**	1(8.1%)
It is good to put on both fan and air condition when baby is sleeping	4(6.2%)	39(88.1%)**	2(5.7%)
It is not compulsory to wear sweater for child when it is rainy	32(8.3%)	33(86.5%)**	0(5.2%)

**** Positive Attitude**

4.6 Experience of Mothers during common cold experiences of their children.

A little above half of the respondents (53.2%) said their children develop common cold when they start school. Most of the respondents (60.3%) said their children develop common cold once in a month followed by 15.6% that said their children develop common cold twice in a month. However few of the respondents (16.4%) said their children do not develop common cold at all.

About one fifth of the respondents (20.5%) stated that their child miss school at least one week in a month due to common cold. Some of the respondents (28.3%) said their children started becoming sick when they started day care. A little above half of the respondents (55.1%) said that before taking their children to daycare they don't usually get sick. More than half of the respondents (62.1%) go to hospital to treat their children when they develop common cold. About one third of the respondent (33.5%) practice self-medication for their children when they come down with common cold.

Highest percentage (31.7%) of those whose children develop common cold when they started school were in ward 5.(see table 4.11)

Table 4.11: Distribution of experience of Common Cold when children started school according to wards (N=205)

Wards	Develop common cold when children started school	
	N	%
Ward 3	30	14.6
Ward 5	65	31.7
Ward 8	25	12.2
Ward 9	35	17.1
Ward 11	50	24.4

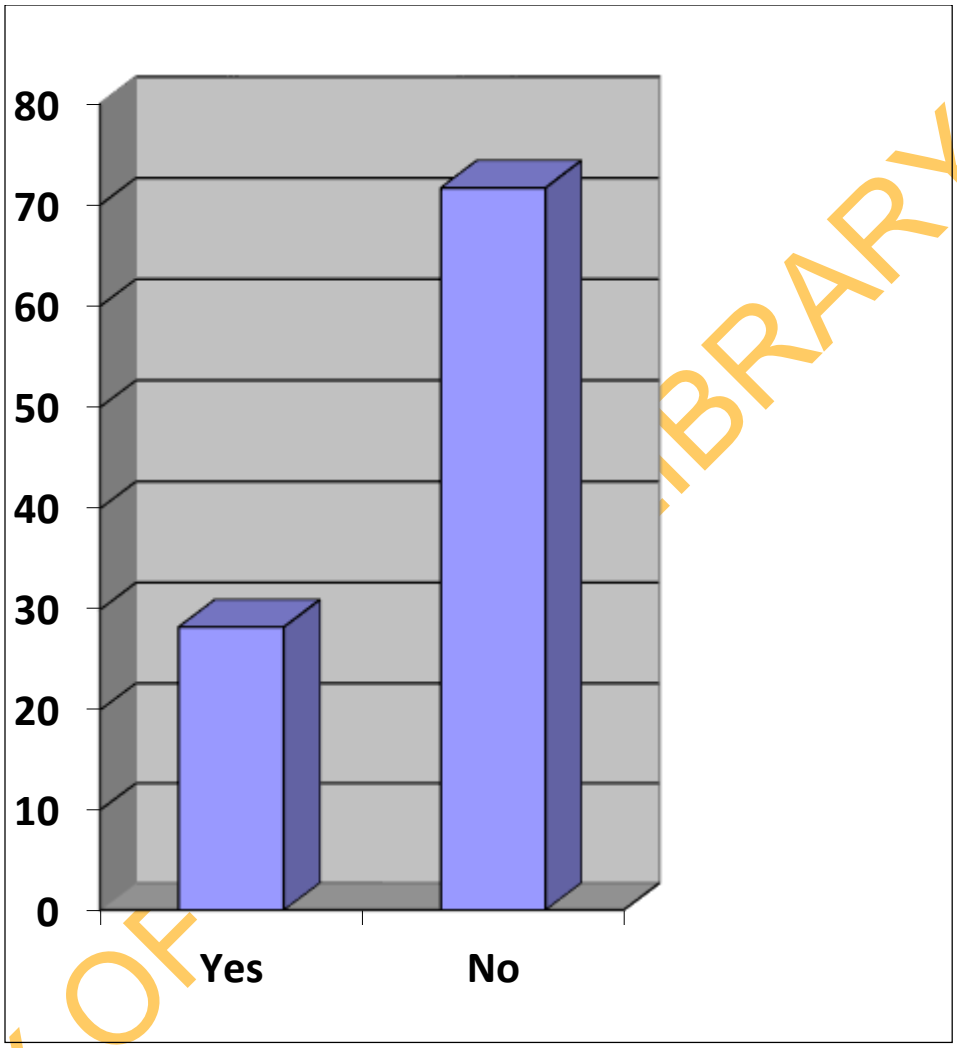

Figure 4.1: Respondents whose children started becoming sick when they started Daycare

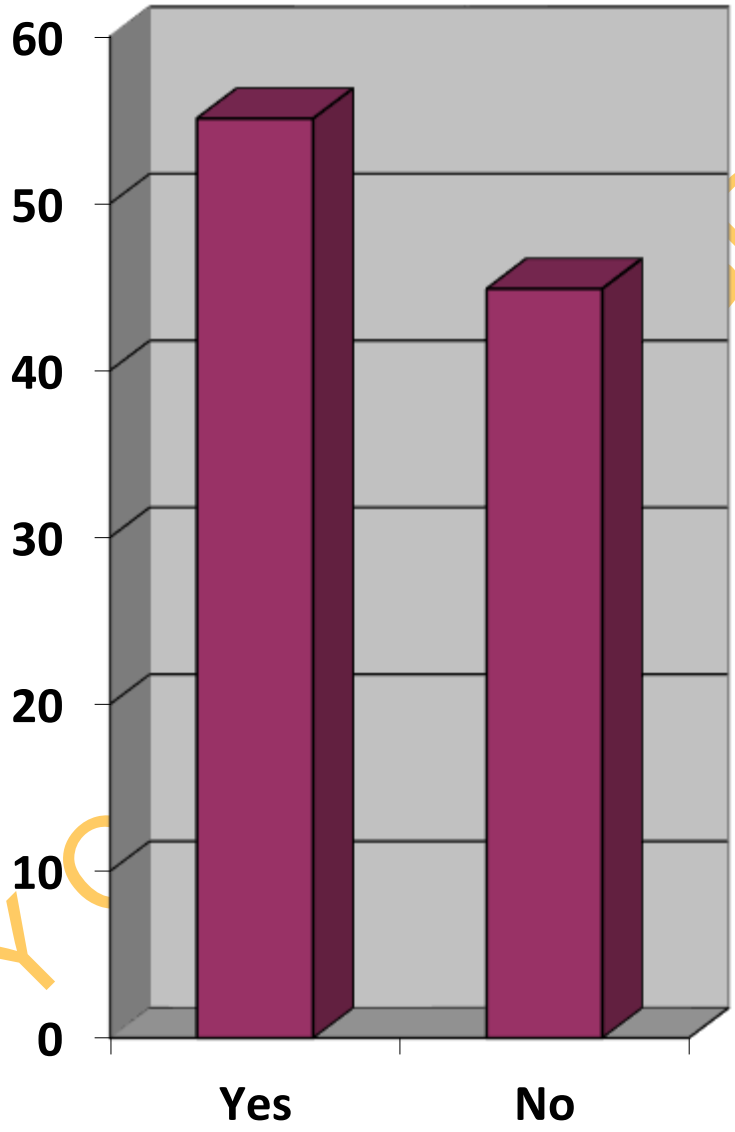

Figure 4.2: Respondents whose children don't get sick before starting daycare

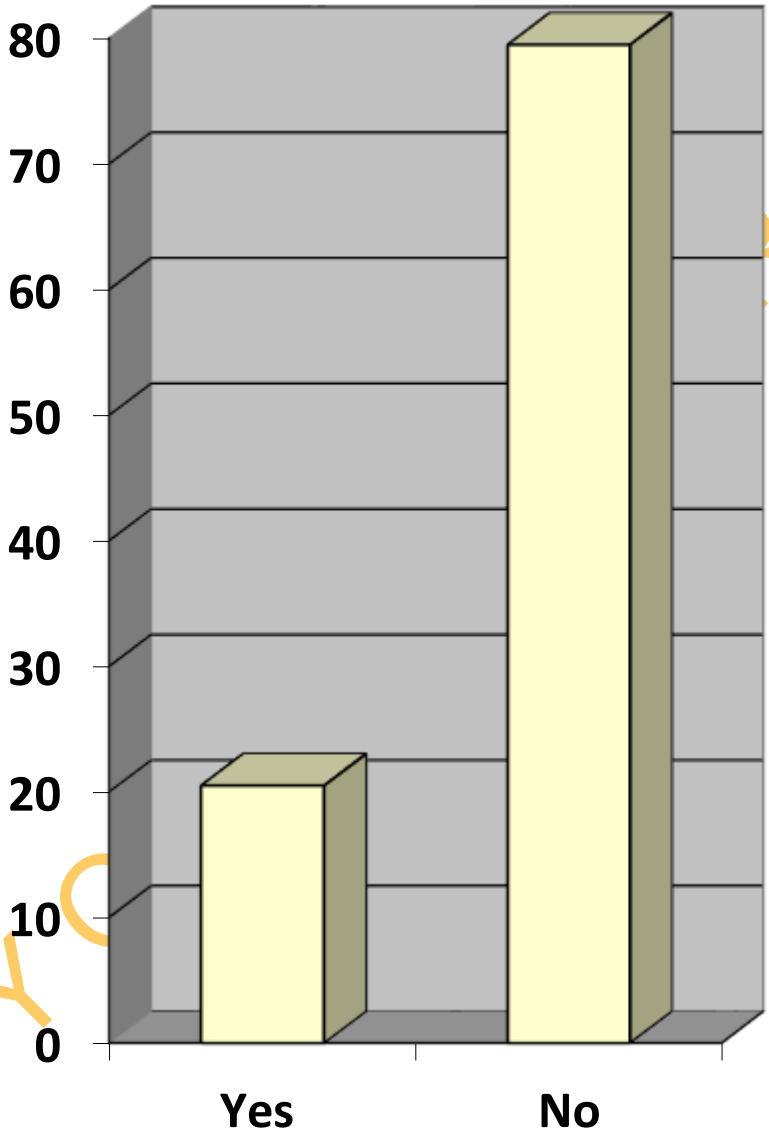

Figure 4.3: Respondents whose children miss school at least once in a month due to common cold

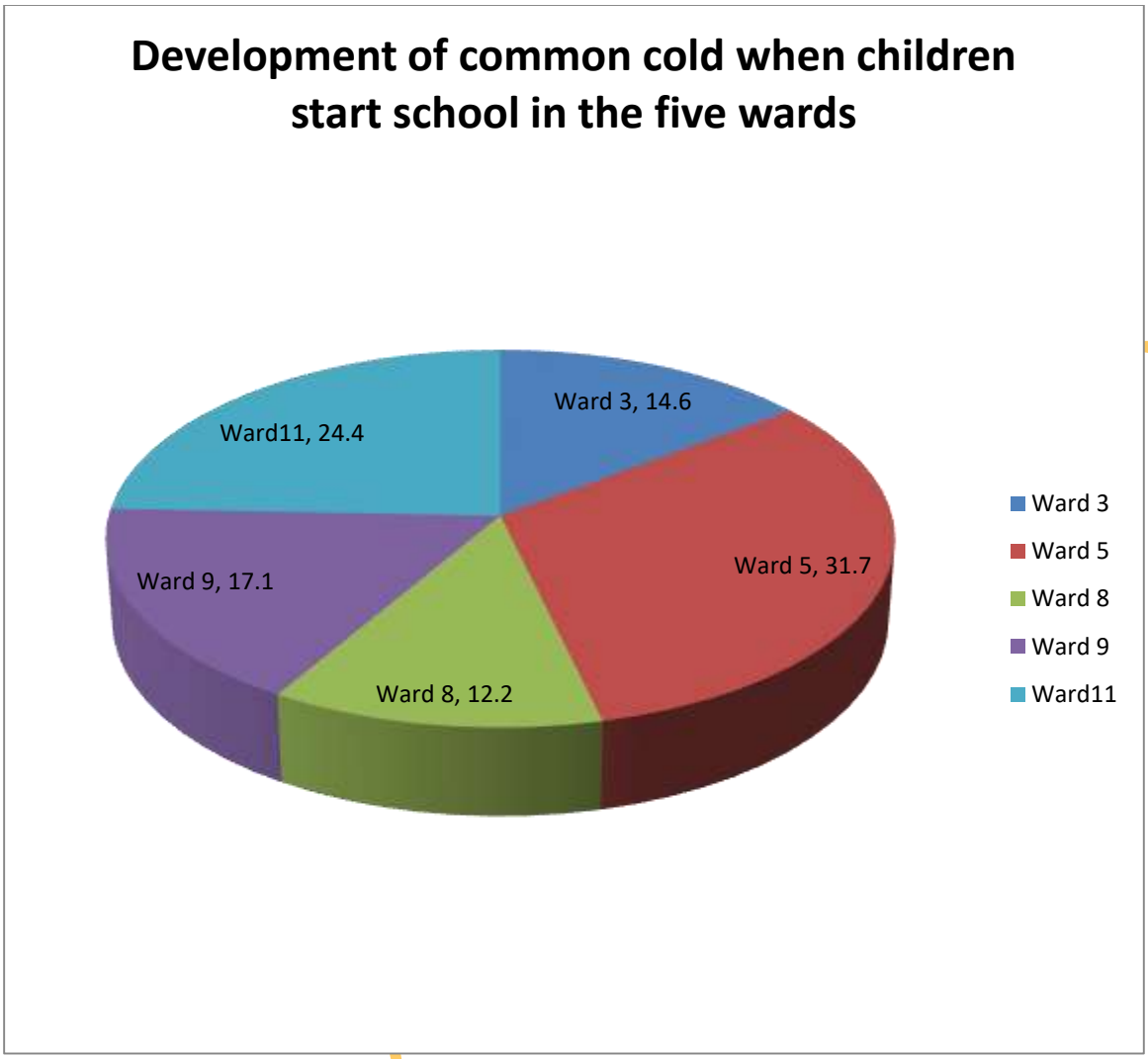

Fig 4.4: Distribution of common cold experiences in the various Wards

4.7 Test of hypotheses

Hypothesis 1

The null hypothesis states that there is no association between the level of education of the respondents and their attitude relating to common cold. Attitude was categorized into negative and positive attitude while level of education was categorized into never went to school, primary level, secondary level, tertiary level. Chi-square was used to test for the association and the result is presented below. Respondents with tertiary education have higher proportion of positive attitude than other categories. Positive attitude increases with increasing level of education.

Table 4.12: Association between respondents' level of education and attitude towards common cold

Variables	Negative Attitude (%)	Positive Attitude (%)	X2	Df	P-value
Level of Education					
Never went of school	5	2	39.720	3	0.000
Primary level	3	6			
Secondary level	6	55			
Tertiary level	22	286			

P-value is 0.000 and is less than 0.05. Therefore there is a significant association between the level of education of the respondents and their attitude relating to common cold. Hence we reject the null hypothesis.

Hypothesis 2

The null hypothesis states that there is no association between the level of education of the respondents and their knowledge on day care attendance as a risk factor to common cold. Knowledge was categorized into negative and positive while level of education was categorized into never went to school, primary level, secondary level, tertiary level. Chi-square was used to test for the association and the result is presented below.

Table 4.13 : Association between respondents' level of education and their knowledge on day care attendance as a risk factor to common cold.

Variables	Negative knowledge (%)	Positive Knowledge (%)	X2	Df	P-value
Level of Education					
Never went to school	5	2	33.894	3	0.000
Primary level	6	3			
Secondary level	33	28			
Tertiary level	73	235			

P-value is 0.000 and is less than 0.05. Therefore there is a significant association between the level of education of the respondents and their knowledge on day care attendance as a risk factor to common cold , respondents with tertiary education have higher proportion of positive knowledge than other categories. Positive knowledge increases with increasing level of education . Hence we reject the null hypothesis.

CHAPTER FIVE

5.0 DISCUSSION, CONCLUSION AND RECOMMENDATIONS.

5.1 Discussion

Socio-demographic characteristics of mothers and their children

The majority of the respondents fell between 30-49 age group and they were mostly Yorubas because the research was carried out in Ibadan which is part of the South Western States in Nigeria. More than three-quarter of the respondents had tertiary education, this may be due to the presence of University of Ibadan and University College hospital in the Local Government Area where the research was carried out. This may also be due to the urban nature of the study site and the importance attached to education in South-western part of Nigeria. With an average standard of living and the fact that most of the respondents are involved in business, most of the respondents claimed to live in rooms that are fully ventilated mostly bungalow houses.

A little below half of the children were between the ages 1-2. Most of the respondents stopped breast feeding their children between 7 months – 1 year although more than half of the respondents admitted starting complementary feeding between the ages of 5 – 6 months which showed that most of them could not practice exclusive breastfeeding for six months due to the nature of their work. Most of the under 5 children were fully immunized up to date. This may be attributed to the educational level and increased immunization coverage in Nigeria.

A study by Marieka et al (2014) said children who enter day care in the first year of life have Upper respiratory infection at earlier. A study among Egyptian children by Nadia, Radah, and Rasha (2012), revealed that that the proportion of ARIs significantly reached its peak below 36months then decreased with increasing of age of the child. Sadly most of the respondents started taking their children to day care between the ages of 6 months and 1year with the reason that they did not have any body to take care of them when they go to work. The situation is further compounded by the fact that the population of children in most of the respondents' children's class is between 20-30, which makes the population of the children in a class a predisposing factor for the spread of communicable disease especially common cold amongst the children .According to Ball, (2002) study

which shows that attendance at large day care was associated with more common cold during pre-school years. Young children are prone to colds and may have 8 to 12 of them every year. Before the immune system matures, all infants are susceptible to upper respiratory infections, with a possible frequency of one cold every 1-2 month, this diminishes as children grow until at school age their rate of such infection is about the same as an adult. (UNICEF,2008). This emphasized the need for improved prevention strategies in day care facilities to lower infection rates among these children at early ages.

Hu, (2005) explained that severe ARIs (severe pneumonia or any disease) increased significantly with higher family size probably because big family size is usually associated with overcrowding which promotes transmission of respiratory pathogens. Also in a study carried out by Hu , (2005) and Lee, (2005), household have significant influence on the transmission of respiratory infections between infectious and susceptible individual increases, people with family members at child care are at higher risk of experiencing ARI. In this study majority of the respondents have between 2-3 children which may promote transmission of common cold at home if not properly managed.

Knowledge of mothers on common cold

Majority of the mothers had good knowledge of common cold. The good knowledge level could be attributed to the level of education of the respondents and the fact that the study setting is an urban setting. Almost all the respondents were able to correctly define common cold as an infection of the respiratory tracks and identified Rhinitis / catarrh as types of common cold. In most instances, diagnosis of the common cold is simple and can be made reliably by experienced mothers. Almost all of the respondents were able to identify nasal discharge, running nose and sneezing as the signs and symptoms of common cold. Majority of the mothers stated that washing of hands with soap and water after sneezing/coughing and use of sanitizers are ways of preventing the spread of common cold. Although this study could not establish whether these mothers actually practice this. Good hand hygiene practices can significantly prevent some communicable diseases.

Contrary to their good knowledge score, only very few of the respondents were able to correctly identify touching the discharge of someone infected with the virus as the cause of common cold. This is the major cause of common cold but most of the respondents are not aware of this. If there is no direct or indirect contact with the discharge of someone infected with the virus, the virus cannot be propagated. This is a serious gap in knowledge that must be bridged because if majority of the respondents do not know the major cause of common cold how will they know how to effectively prevent the spread of common cold. A structured training programme can be employed to educate mothers. In an experimental study by Sachin (2012), there was significant increase in knowledge score of mothers in experimental group after administration of structured training program. He concluded that structured teaching programme was effective means in improving knowledge of the mothers regarding domiciliary management and prevention of upper respiratory infection in children.

In a publication by New York times by Harvery in 2015 it was said that cold and flus occur predominantly in winter. Flu season typically starts in October and lasts into mid-march. Flu and colds are more likely to be transmitted in Winter because people spend more time indoors and are exposed to higher concentrations of airborne Viruses. Dry winter weather also dries up nasal passages making them more susceptible to viruses leaving room from transmission of non-communicable diseases especially among family members. Sadly some of the respondents disagreed that when a family member has cough, the child will develop cough which shows that they don't understand how disease spread amongst the family members. Mothers should be educated about the spread of communicable diseases and how simple personal hygiene and some preventive measures can prevent their children from contacting some communicable diseases like the common cold from other members of the family. Most of them are even of the opinion that drinking of cold water and cold weather can cause common cold and ignorant of the main cause of common cold which is the virus that can be passed from an infected person to an uninfected one. Although cold weather can make the virus strive in the body but it cannot cause common cold. Children that come down with common cold always get it from an infected person.

Knowledge on usage of day care as a risk factor

Almost half of the respondents agreed that day care / pre-nursery contribute to a child's manifestation of common cold and other communicable diseases which shows is a risk factor. This is because children due to their active nature and innocence can promote the spread of infection when they are playing. This is especially true among infants and toddlers who are likely to use their hands to wipe their noses or rub their eyes and then handle toys or touch other children. These children then touch their noses and rub their eyes so the virus goes from the noses or eyes of one child by way of hands or toys to the next child who then rubs his own eyes or nose. (Huskin, 2000). According to Thomas et al, (2002) day care attendance is a well-established risks factor for URTI in pre-school children.

Most of the respondents agreed that Daycare that permits parents to bring their sick children are exposing the other children to diseases which shows that the school authorities are not effectively using the policies for sick children in school. Schools especially daycare should educate, counsel and encourage mothers not to bring their sick children to school especially if it has to do with a communicable disease. This is because children in Daycare are young and their immune system has not fully developed to protect them. Sick children need their mother's care and attention and they should be properly treated at home before resuming back to school. The situation may not be helped by the population and sleeping arrangement of children in the day care which most of the mothers agreed can contribute to the spread of common cold. This study has been able to establish that some Daycare have up to 30 children in a room which may promote the spread of common cold. Some of the Daycare centres are profit- oriented and proprietors and administrators may be tempted to admit as many as possible children so as to maximize profit at the expense of the making the centre health promoting. Observational survey is recommended to find out the sleeping arrangement of children in the day care.

Majority of the mothers agreed that teachers should turn parents down from bringing their children to school when they are sick. Parents can assist in enforcing this policy if

they monitor and practice this and also ensure that the Daycare they patronize enforce this policy. This may significantly reduce the spread of common cold in the Daycare/Schools. Almost all of the respondents disagreed that mothers should not tell teachers when their baby is sick and agreed that mothers should not take their child to school when they are ill. This reiterate the fact that mothers have a significant role to play by ensuring that the school/ Daycare is made aware if a child is sick and needs medical attention, the study found out that there is a significant association between the level of education of the respondents and their knowledge on day care attendance as a risk factor to common cold due to the fact that most mothers sees day care as a place to keep their children when they need to go to work and not necessary concerned about day care facilities itself. Most of the mothers stated that they don't encourage their children to play with a child that has common cold and agreed that washing of hands after blowing babies nose is necessary. These are good preventive measures and practices .

Attitude of mothers

Almost all the respondents have positive attitude towards common cold. Almost all of them agreed that it is compulsory to wear sweater for a child because of cold when it is rainy.

This study found a significant association between the level of education of the respondents and their attitude relating to common cold which is contrary to the study carried out by Jafari et al (2013) in Tehran Iran where he reported that there was not any relationship between educational level of the mothers and their attitude and practice levels. This can also be explained by the respondents' good knowledge levels. It may also be attributed to abundance of health education programs on the radio and other media. Attitude and practice are result of knowledge of mothers.

Experience of mothers.

The study carried out by Thomas et al, 2002 in Iran concluded that attendance at large day care was associated with more common cold during the pre-school years. However, it was found to protect against the common cold during the early school years, presumably

through acquired immunity. About a quarter of the respondents admitted that their children started becoming sick when they started day care while a little above half of the respondents said that before taking their children to daycare they don't usually get sick. Most of them stated that their children develop common cold once in a month, ward 5 has the highest numbers of day care centers and also the highest experience of common cold. The findings is also similar to a study by Nafstad et al , (1999), which shown that young children attending day care have increased morbidity (in terms of airways infection and respiratory symptoms) compared with children staying at home. Another study carried out with 1238 Canadian Families with babies born in 1998 and followed the children from age of 5 month to 8 years compared to young stars who stayed at home, concluded that babies who attend large –group child-care centers before they are 2 years of age do get more respiratory and ear infections than those cared for at home, but they are less likely to come down with these ailments once they start elementary school (Sylvana, 2011). Although there are advantages in taking a child to Daycare, mothers should also be aware that children taken to Daycare especially at a very early age are at risk of communicable diseases and it is their responsibility to at least ensure that the Daycare they patronize at least conform to some standards and take steps to prevent spread of non-communicable diseases especially now that we just got over the Ebola scare.

Implication for health promotion and education

The result of this study highlights far reaching implication for planning, development, implement and evaluation of school health services in the study area and Nigeria at large. Findings from this study have health promotion and education implication and suggest the need for multiple interventions directed at tackling the phenomenon. Health education is the part of health care that is concerned with promoting healthy behaviour. Health education is therefore any planned combination of learning experiences designed to predispose, enable and reinforce voluntary behavior conducive to health in individuals, groups or communities . Health education principles and strategies can be used to address the challenges identified in the study. The findings of the study have suggested strong need for developing appropriate interventions that should focus on the following:

1 Increase the knowledge of mothers on the causes and spread of common cold . This can be achieved through regular health talk during PTA meetings at the school level, public health worker can take it upon themselves to educate mothers when they come to clinic for immunization.

2 Community awareness campaign will be productive on the causes and spread of common cold

3 Enlightenment of mothers on the myth and misconceptions about common cold causes and transmission.

4 Increased advocacy on the importance of allowing sick children who are receiving treatment at the hospital to stay at home and not come to school throughout the period of their sickness.

5 Policies developed on management of sick children in schools, population of children per class, adoption of school health practices by all schools should be implemented.

So it is essential to design training programmes focusing on the level of health system nationwide. The use of bill board , posters, banners and social media, within the community and school premises, educating mothers on the causes of common cold and risk factors to common cold in day care premises. Parent-Teachers Association meeting can be adjusted to accommodate a health talk for mothers about communicable diseases causes and transmission and also a forum for mothers to share their views about the day care services

The findings of this study could be used by the State/local government and educational board as an assessment tools for monitoring and evaluation of day care services . Upgrading knowledge of teachers on the causes and spread of communicable disease in the school premises. Several changes may be needed , hence program should be tailored to suit the characteristic of an adult as well as the cultural context taking for peculiarity of the study population

5.2 CONCLUSION

This study found that mothers have high knowledge about the signs and symptoms of common cold but their knowledge about the real cause of common cold was low , a larger percentage have good knowledge on day care as a risk factor to common cold and the experience of mothers when their children started day care was not pleasant. However attitude concerning common cold spread and management was good . Given the importance of infectious disease as causes of morbidity and mortality of children, faced with the growing use of day care and pre -school education centres among the child population , measures and control of disease transmission in these environments is of fundamental importance to reduce the damage done to the health of children and the dissemination of infection into the community.

5.3 RECOMMENDATIONS

1 Enlightenment program for mothers by Health Professionals on the myth and misconceptions about common cold causes and transmission should be carried out in Ibadan North Local Health facilities

2 Increased advocacy to schools and communities on the importance of allowing sick children who are receiving treatment at the hospital to stay at home and not come to school throughout the period of their sickness .

3 Standard of the school environment is important in the wellbeing of the children, the government should strictly monitor the day care facilities in relation to their, sanitation, hygiene and environment according to the school health standard policy.

Suggestion for further researchers

This study on mothers knowledge on day care attendance as a risk factor for common cold among under five children in Ibadan North Local Government, Oyo State, A lot of the respondent said sleeping arrangement of children in the day care promote the spread of common cold, further studies can be conducted as an observational study on services rendered by day care centers .

REFERENCES

Acharya, D. Prasanna, K.S. Nair, S. and Rao, R.S. (2003). Acute respiratory infections in children: A community based longitudinal study in south India. *Indian J Public Health*;47:7–13.

Ackerman, S.J. Duff, S.B. Dennehy, P.H. Mafilo, M.S . and Krilou, L.R. (2010) : economic impact of specialized pre-school setting. *Pediatric* ,100-102.

Akon, A.kim, T. O. Mackie, J.F. Wolff, M. and Bernzweign, J. (2010): health and safety needs in early care and education programs. *Public Health Nursing*:27 (1); 3-16.

Alade, F. (2013):cognitive and social development of children in day care; A case study of working mothers in Ado- Ekiti Nigeria. *Kuwait chapter of Arabian Journal of Business and management review vol 2 pg 10*

Ammer, C. (1997): The American Heritage Dictionary of Idioms Boston .MA Houghton Mifflin company.Pg 111-114.

Anderson, K.A., Foster, J. and Frisvold, D. (2004). Investing in health: the long term impact of Head Start. Vanderbilt University.pg 102-110.

Anderson, P.M. and Levine, P.B. (1999). Child care and mothers' employment decisions. *National Bureau of Economic Research, Cambridge,* MA.

Araoye, M.O.(2004). *Research methodology with statistics for health and social sciences;* pp. 115–20.

Athumani, J. (2008): Knowledge, attitude and practice of mothers on symptoms and sign of Integrated Management of Childhood illness (IMCI) strategy at Buguruni reproductive and child health clinic. Tanzania medical student association.

Baker, D. Goealing, B. and Letendre, G. (2002): socioeconomic status , school quality and national analysis of Heyneman- *Loxley effect on mathematics and science achievement comparative education;* 46 (31, 291-313).

Ball, T.M (2002). Day care and common cold*: Arch pediatr Adolescence Med*: 156 (2):121-6.

Bandyopadyay, D. Debasis, R. and Ahemed, T. (2013): A study of knowledge, attitude and practice among mothers towards Acute Respiratory Infections in Urban and rural communities of Burdwan district, west Begal, India. *Rewiev of program;* vol 1 issue 8 June 19: 101-106

Barros, A.J. (1999). Child care attendance and common morbidity: evidence of association in the literature and questions of design: *Rev Saude Publication*: 33:98-106

Barnett, W. S. (2008). Preschool Education and Its Lasting Effects: Research and Policy Implications. Boulder and Tempe: *Education and Public Interest Center & Education Policy Research Unit. Vol 3 (10-15)*

Belsky, J. (1992); Consequences of Child Care for Children's development. A deconstructionist view. In A Booth(Ed) Childcare in the 1990s. Hillsdale, NJ Erlbaum.

Centers for Disease Control and Prevention (CDC) .(2004). Osteomyelitis/septic arthritis caused by Kingella kingae among day care attendees , Minnesota. *Morb Mortal Wkly Rep*.;53:241–3.

Centre for community health (2005):An information sheet for parent, reducing infectious disease in children.

Challenges for Global Health.(2012). Focus Area Acute Respiratory Infections (ARI) , Dec 10 .

Ebenebe, J. and Ulasi, T.O. (2007) . Nutrition and nutritional assessment in childhood. In: Azubuike JC, Nkanginieme KE, editors. *Paediatrics and Child Health in Tropical Region*. 2nd ed. Owerri African Educational Services, pp. 396–425.

Eccles, R. (2002). An explanation for the seasonably of acute Upper respiratory tract viral Infections; *Acta otolaryngol*: 122(2);183-91.

Erel, O. Oberman, Y. and Yirmiya, N. (2000). "Maternal Versus non-maternal care and seven domains of children's Development.. *Psyychol Bull* 126(5) 727 – 747.

Farzana, F. (2014). Mothers' perception and health care seeking behavior of Pneumonia children in Rural Bangladesh. Hindawi publishing corporation. pneumonia in India:

Fasina, F.F. (2011): the role of parent in early childhood education. A case study in Ikeja, Lagos State, Nigeria. *Global Journal of Human Social Science, Vol 11 issue 2 version*.

FME and UNICEF. (2006). National School Health Policy, FME, Abuja.

Federal Ministry of Education (FME), (2010). One year strategy for development of education section.FME

Gupta, N. Jainsk , R. Chawla, U. Hossains, V. and Enkatesh, S. (2007). An evaluation of diarrheal disease and acute respiratory infections control program on a Delhi Slum. *Indian Journal of Pediatric* may ; 74,(5);471-6

Hand, K. (2005). Mothers' views on using formal child care. *Family Matters; No. 70,* 10-17.

Harvey, S. (2013). Immunization and infectious diseases, An informed parent's guide .*American academic of Pediatrics* .

Holmes, S.J. Morrow,A.L. and Pickering, L.K . (1996): effects of social change on the epidemiology of infectious diseases and antibiotic resistance. *child care practices* 18:10–28.

Huskins, W.C .(2000). Transmission and control of infections in out–of–home child care. *Pediatr Infect Dis J*; 19:S106–10.

Huston, A. C., Chang, Y. E., & Gennetian, L. (2002). Family and individual predictors of child care use by low-income income families in different policy contexts. *Early Childhood Research Quarterly*, 17(4): 441-469.

Hu,X.J. and Wang, B. (2005). Analysis on incidence and influencing factors of acute Respiratory Infection among residents in Nanjing, *Chin J Dis Prev* 9: 166-168.

Ibrahim,H.A. (2010). mothers knowledge of child health matters. *Family Community Med*. 17,1:22-28

Johnson, A.W .(2007). Acute respiratory infections. In: Azubuike, J.C. Nkanginieme, K.E. (Editors). Paediatrics and Child Health in Tropical Region. 2nd ed. Owerri African Educational Services. Pp. 396–425.

Jafari, F. Amin, Z. Malihe, A. Fatemenh and Samadpour, M. (2013):Knowledge, attitude and practice of mothers regarding ARI in children. *Bioscience Biotechnology Research Asia*, April 2013.Vol 2; 202-207.

Jumai, E.A (1995); Women and Education; *A Journal of Federal Colleges of Education; Women association, Kano, Nigeria*. Vol. No.1, Pg 12 – 16

Lanata, C.F. Rudan, I. Boschi-Pinto, C. Tomaskovic, L. Cherian T, Weber, M .(2004). Methodological and quality issues in epidemiological studies of acute lower respiratory infections in children in developing countries. *Int J Epidemiol*.;33:1362–72.

Lee ,G.M. Alomon, J.A. and Frieidman, J. F. (2005). Illness transmission in the home : a possible role from achol-based hand gel. *Pediatr* ; 115 : 852-860.

Loule JK, Hacker JK, Gonzale R, Mark J. (2005): characterization of Viral agent causing acute respiratory infection in a San Francisco University Medical Center Clinic during the influenza season. *Clin infect Dis*: 41(6):822-8.

Marieke , L. A. (2014) . Impact of early care on health care resource use related to Upper Respiratory Tract Infection during childhood. *BMC Medicine*;12: 107

Mathew, J.L. Patwari, A.K. Gupta, P. Shah, D. Gera, T. Gogia, S. (2011). Acute respiratory infection and pneumonia in India: A systematic review of literature for advocacy and action: UNICEF-PHFI series on newborn and child health, India. *Indian Pediatr* ;48:191–218.

Merriam- Websters Medical Dictionary (2002): Common cold Merrian-Webster, Inc.

Meyer, M.K., and Jordan, L.P. (2006). Choice and Accomodation in Parental Child Care Decisions. *Journal of the Community Development Society,* 37(2): 65

Nadia,M. Radah,H. and Rasha, R. (2012). Assessment and classification of acute respiratory tract infections among Egyptian Rural Children. *British Journal of Medicine and Medical Research: 2(2): 216-227.*

Nafstad, P.H. Agen, J.A. Ole, L.M. Agnue, P.J. Akala, (1999). Daycare centers and respiratory health. *Pediatrics* (103:753-758)

National Institute of Child Health and Human Development Early Child Care Research Network (2001). Child care and common communicable illnesses: results from the National Institute of Child Health and Human Development Study of Early Child Care. *Arch Pediatr Adolesc Med*;155:481–8.

National heart, lungs, and blood institute (2012): the respiratory system.

National health and medical Research council (2006): staying healthy in child care, preventing infectious diseases in child care (4th edition)

Olusola, I.A. (2014): Appraisal of child care arrangement in Ekiti State Nigeria; parent perception analysis. *Journal of Educational and Social Research vol 4 no 3*

Osterholm, M.T. (1994). Infectious disease in child care: an overview. *Pediatrics*;96:987–90.

Oshikoya, K. A. and Senbanjo, I. O. (2008): Fever I children; mothers perceptions and their home Management. *Iranian Journal of Pediatrics* :18:229-236.

Oyejide, C.O and Osinusi, K.(1991). Incidence of acute lower respiratory infections in a low socioeconomic community. *Niger J Paediatr*.:8–21.

Oyedeji, G.A.(2011). The pattern of infections on children with severe protein energy malnutrition. *Niger J Paediatr* ;48:191–218.

Peterson, I. (2007). Protective effect of antibiotics against serious complications of common respiratory tract infection: retrospective cohort study with the UK general practice Research Data Base: *BMJ* ;335(7627);982.

Prajapati, B. Nitiben, J.T. Lala, M.K.and Sonalia, K.N. (2012). Epidemiological profile of acute respiratory tract infections in under five age group children in urban and rural communities of Ahmedabad district Gujarat. *Int J Med Sci Public Health*;1:52–8.

Sachin, M.(2012). Effectiveness of structured teaching program on knowledge of mothers of under 5 children on domiciliary management and prevention of Upper Respiratory Tract infection. *Sinhgad College of Nursing, Bangolore*.

Simuyu, D.E. Wafula, E and Ndulati , R.(2004): knowledge , attitude and practice regarding ARI in children in Baringo District, Kenya. *East Africa Medical Journal* 80-6.

Slack, L.M. Read, A.W. and Stanley, F.J.(2004).Absence from child care for respiratory illness. *Child Care Health Development* , pg 30:29-32

Sonja T (2010): illness in child care, fact sheet for families. National child care accredition council .

Stainton RW (2004): promoting better childhood; construction of child concern in M. J Kehily (ed). An introduction to childhood studies .pp 125-144) .

Sylvana,M. (2011): Experience of mothers on common cold; health magazine of University of Montreal, Canada.

Thomas, B. M. Holberg, C.J. Aldous, M.B. Martinez, F.D. Wright, A.L. (2002): influence of attendance at Day Care on the common cold from Birth through 13 years, Arch *Pediatr adolescent Med* pg 121-126

Thomas, M. (2002). Influence of attendance at day care on common cold from Birth through 13 years of age. *JAMA Pediatric*:12-16.

Thompson, S.C.(1994). Infectious diarrhoea in children: controlling transmission in the child care setting. *J Paediatr Child Health* ;30:210–9.

UNESCO (2010), Education for All Global Monitoring Report, "Reaching the Marginalized".

UNESCO (2010). Early Childhood Care and Education Regional Reports, "Arab States", "Asia and the Pacific" and "Africa". World Conference on Early Childhood Care and Education, Moscow, Russian Federation, September,.

UNICEF/WHO, 2009 Breast feeding initiatives (BFI) Nigeria.

UNICEF,2011, Situation analysis of children and women in Nigeria.

WHO, (2002), environmental health indicators, development of a methodology for the WHO European region.

Yousif, T.K. and Klaheq, B.A.(2006). Epidemiology of acute respiratory infections among children under-five old attending Tikirit general teaching hospital. *Middle East J Fam* Med;14:3.

APPENDIX I

Informed Consent form

Introductory Information

Dear Respondent,

Greetings: My name is ***Abiodun Essiet***. I am a Master of Public Health student in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine University of Ibadan. I am conducting a research project titled **Mothers Knowledge of under -5 children on day care attendance as a risk factor in Ibadan North Local Government, Oyo State** as part of the requirement for the degree**.** I am here to learn from you and would be very glad if you can spare some minutes to share your experiences with me. Please feel free to share your beliefs and opinions. Also the research is risk free and participation is entirely voluntary

Your identity, responses and opinions will be kept confidential and no name is required in completing the questionnaire. You are requested to please give honest responses to the questions as much as possible.

Thank you for your cooperation.

Part II

I have read the information above concerning the study and I understand what will be required of me if I take part in the study. I agree to take part in this study.

_ _ _ _ _ _ _ _ _ _ _ _

Respondent's signature/Thumb print

Date_ _ _ _ _ _ _ _ _ _ _#

APPENDIX II

QUESTIONNAIRE

MOTHERS KNOWLEDGE OF UNDER-FIVE CHILDREN ON DAY CARE ATTENDANCE AS A RISK FACTOR FOR COMMON COLD IN IBADAN NORTH LOCAL GOVERNMENT , OYO STATE , NIGERIA.

SECTION A : SOCIO-DEMOGRAPHIC INFORMATION

Instruction: Please tick (√) in the boxes provided (as appropriate)

1. Age of mothers in years (age as at last birthday)…….years
2. Ethnic group (1) Yoruba [ ] (2) Hausa [ ] (3) Igbo [ ] (4) Others (specify)……..
3. Religion (1) Christianity [ ] (2) Muslim [ ] (3) Traditional [ ] (4) Others specify……..
4. Marital Status: (1) Married [ ] (2) Divorced [ ] (3) Single [ ] (4) Complicated [ ] (5) Separated [ ] (6) Widowed [ ]
5. Occupation 1 Teacher [ ] 2 Business woman [ ] 3. Fashion designer [ ] 4. Medical personnel [ ] 5. Banker [ ] 6. Government worker [ ] 7. Others please specify …….
6. Educational level: (1) Never went to school [ ] (2) Primary level [ ] (3) Secondary level [ ] (4) Tertiary level [ ] (5) Others (specify) ……
7. Structure of your house 1 One room apartment [ ] 2. Face me and face you [ ] 3 bungalow [ ] 4. Mansion [ ]
8. How many of you sleep in one room? 1 1-2 [ ] 2 2-4 [ ] 3 4-6 [ ] 4 6-8 [ ] 5 8-10 [ ]
9. Is your house ventilated? 1 Fully [ ] 2 Partially [ ] 3. No ventilation [ ]
10. Do you smoke? 1 Yes [ ] 2 No [ ]
11. Does your husband smoke? 1 Yes [ ] 2 No [ ]
12. What do you use to cook? 1. Kerosene Stove [ ] 2. Charcoal stove [ ] 3 Electric cooker [ ] 4 Gas cooker [ ]

13 How many children do you have? ..……

14 How many children are under 5……..

15 What is the position of your under 5 in the family

(a) Child 1 1 1ST [ ] 2 2nd [ ] 3 3rd [ ] 4 4th [ ] 5 Last born [ ]

(b) Child 2 1 1ST [ ] 2 2nd [ ] 3 3rd [ ] 4 4th [ ] 5 Last born [ ]

CHILDS DETAIL

16 What is the birth weight of your child? 1 > 2.5kg [ ] 2 2.5-3.5kg [ ] 3 < 3.5kg [ ] 17 Sex of your child

(a) How many are male…….

(b) How many are female……..

18 How old is/are your under 5?

(a) For Child 1 1 1month-6month [ ] 2 7month-12 month [ ] 3 >2 years [ ] 4 > 3years [ ] 5 > 4years [ ] 6 >5years [ ]

(b) Child 2 1 1month-6month [ ] 2 7month-12 month [ ] 3 >2 years [ ] 4 > 3years [ ] 5 > 4years [ ] 6 >5years [ ]

c) Child 3 1 1month-6month [ ] 2 7month-12 month [ ] 3 >2 years [ ] 4 > 3years [ ] 5 > 4years [ ] 6 >5years [ ]

19 Is any of your child still breast feeding? 1 Yes [ ] 2 No [ ]

20 If No for the previous question, when do you normally stop breast feeding your child?

1 >6mth [ ] 2 > 1yrs [ ] 3 > 2 yrs [ ] 4 > 3yrs [ ]

21 When did you introduce complementary food to your child?

1 3-4mth [ ] 2 5-6 mth [ ] 3 7-9mth [ ] 4 10-12month ( )

22 Immunization status of your child 1 Fully immunized/ Up to date [ ] 2 Partially immunized [ ] 3 Not immunized [ ]

23 Did your child receive all the special vaccine like the rotavirus, PCV etc?

1 Fully [ ] 2 Partially [ ] 3 Not all [ ]

24 Why do you take your child to day care?

1 I don't have some one to look after them when I am gone to work [ ]

2 Because my friends and family ask me to do [ ]

3 I don't have time for them [ ]

4 For my child to socialize [ ]

5 So that I will have time for other things [ ]

25 At what age did your child/children started attending day care facilities?

1 >6 month [ ] 2 > 1yr [ ] 3 > 2yrs [ ] 4 >3yrs [ ] 5 >4yrs [ ]

26 How long does your child stay in day care /other similar places?

1 4-6 hrs [ ] 2 7-10 hrs [ ] 3 More than 10 hours [ ]

27 What is the population of children in your child's class? 1 > 10 children [ ] 2 > 20 children [ ] 3 > 30children [ ] 4 > 40 children [ ]

28 what class is your under 5

Child 11 crèche [ ] 2 playgroup/ kindergarten [ ] 3 nursery/ pre-nursery [ ]

Child 2 1 crèche [ ] 2 playgroup/ kindergarten [ ] 3 nursery/ pre-nursery [ ]

SECTION B : KNOWLEDGE ON COMMON COLD

29 What is Common cold?

1 Are infections of respiratory tracts [ ]

2 Are non communicable disease [ ]

3 Are infections of the digestive tract [ ]

30 What are the types of common cold

1 Rhinitis/ catarrh [ ]

2 Pneumonia [ ]

3 Measles/ mumps [ ]

31 What are the causes of common cold (***Tick as many that applies***)

1 Overcrowding / poor ventilation/ cold weather [ ]

2 Poor immunization /genetic [ ]

3 Poor sanitation/ malnutrition [ ]

4 Touching the discharge of someone infected with the virus [ ]

32 What are the signs and symptoms of common cold

1 Nasal discharge/ runny nose/ sneezing [ ]

2 Itching / rashes [ ]

3 Headache/bleeding. [ ]

33 How can you prevent the spread of common cold

1 Washing hands with soap and water/sanitizers after sneezing/coughing [ ]

2 Using of handkerchief to sneeze and put it on the table [ ]

3 I don't know [ ]

34 Common cold can lead to dangerous sickness agree [ ] disagree [ ]

35 Mal-nutrition can cause common cold agree[ ] disagree[ ]

36 Fully immunized babies would not have common cold agree [ ] disagree [ ]

37 Drinking of cold water and cold weather cause common cold agree [ ] disagree. [ ]

SECTION C: MOTHERS KNOWLEDGE ON DAY CARE ATTENDANCE AS A RISK FACTOR TO COMMON COLD

s/n	***Statement***	***agree***	***Disagree***
38	Day care/ pre-nursery contribute to my child's manifestation of Common cold		
39	Day care that permits parent to bring their sick child to school for caring for them are exposing the other children to diseases		
40	The numbers of children in the day care contribute to the spread of Common cold		
41	The sleeping arrangement of children in day care can contribute to the spread of Common cold		
42	I think the age of a child makes them more vulnerable to communicable disease		
43	It is better to keep a child away from school when they are sick.		
44	Teachers should not turn parents down from bringing their children to school when they are sick		

45	Mother should not tell teachers when their baby is sick		
46	Mother should take their child to school when they are ill.		
47	I encourage other children to play with my child having common cold		

SECTION D: ATTITUDE OF MOTHERS TO COMMON COLD PREVENTION

S/n	***Attitude Statements***	***agree***	***Disagree***	***Undecided***
48	Washing of hands after blowing babies nose is not necessary			
49	A child should not be taken to the hospital for having ordinary common cold			
50	It is better to take children's bath with cold water			
51	There is nothing bad in breast feeding a child when cooking in the kitchen			
52	It is good to put on both fan and air condition when baby is sleeping.			
53	It is not compulsory to wear sweater for child when it is rainy			

SECTION F : EXPERIENCE OF MOTHERS

54 My child started becoming sick when he started day care1 Yes [ ] 2 No [ ]

55. Before taking my child to day care, they don't usually get sick 1 Yes [ ] 2 No [ ]

56. My child misses school, at least one week in a month and twice a day due to common cold 1 YES [ ] 2 NO [ ]

57 How often does your child develops common cold

1 Twice a month [ ] 2 Once a month [ ] 3 Three times a month [ ] 4 four times a month [ ]

58 How do you treat your child with common cold

1 Self medication [ ]
2 Traditional drugs [ ]
3 Go to the hospital [ ]

Thank you very much for your time